

OCTOBER 1954

# AMERICAN ARTISAN

WARM AIR HEATING  
RESIDENTIAL AIR CONDITIONING  
SHEET METAL CONTRACTING

ROOM AIR distribution  
for summer cooling 116

HOOD AND GUARD pattern  
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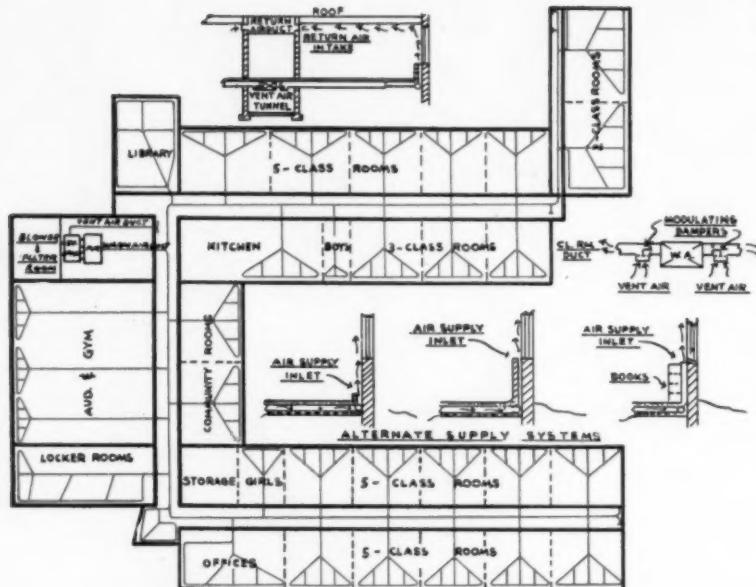


TALKING WITH the prospect about the  
equipment builds more business ..... 72

# in one hour's time

## seven complete air changes

### with constant blower operation!



Typical plan of school building  
with J-C forced warm air heating  
and ventilating system

Another reason why

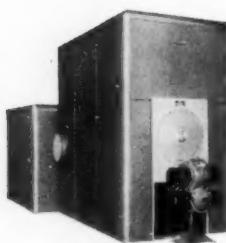
more and more

dealers demand

**JACKSON & CHURCH**

**WARM AIR FURNACES**

for tough heating jobs



70,000 to 3,800,000  
Btu output

J-C furnaces are preferred for the modern forced warm air perimeter ventilating and heating systems that are replacing outmoded heating arrangements in schools and other institutional buildings.

All the advantages of perimeter heating . . . plus seven complete air changes per hour, constant blower operation and individual room temperature control . . . are provided with J-C's PoweRated furnaces. Architects specializing in this type of structure endorse J-C's cost-saving features and dependability.

Write our engineering department for more details.

**J-C**

**JACKSON & CHURCH CO.**

SAGINAW, MICHIGAN

Work well done since eighty-one

**"tops" from every angle...**

**KO-Z-AIRE**  
PRODUCTS, INC.

FROM most any angle—beauty, construction, price, operation—KO-Z-AIRE's got everything else beat by a country mile. All of which are mighty important things to have in your favor when selling heating.

But one big thing you're also concerned with is installation. And that's the angle we're stressing here.

What you see is a KO-Z-AIRE Winter Air Conditioner. What you should know about it is that (like this one) most KO-Z-AIRE units have integrally-designed, one-piece, welded steel bases with cross-braced channels—features which cut installation time down and boost profits way up—since there's no need for special grouting or cementing. In addition, most KO-Z-AIRE units are assembled and wired at the factory.

Another important angle this day and age is convertibility. And that again is a big advantage KO-Z-AIRE dealers enjoy—as most models are designed for ready conversion from gas to oil, or vice versa.

Pictured here are but a few of the over 30 gas and oil-fired models in the KO-Z-AIRE line. It includes furnaces ranging in capacities from 70,000 to 420,000 BTU input—a size for nearly every home, small church, school or commercial building.

But why not get all the facts and figures for your own inspection! Start now by mailing the coupon below.



MAIL COUPON  
TODAY



### MORE THAN 35 MODELS



GAS HI-BOY  
MODELS



CONVERSION  
GAS BURNER



GAS GRAVITY  
MODELS

- Counterflow and Hi-Boy Models—Oil 85,000—96,000 BTU Output
- Counterflow and Hi-Boy Models—Gas 70,000—90,000 BTU Input
- Gas Conversion Burner 70,000—300,000 BTU Input
- Lo-Boy Models—Gas 90,000—140,000 BTU Input
- Lo-Boy Models—Oil 85,400—123,000 BTU Output. Larger models to 420,000 BTU
- Oil Conversion Burner 0.75—12 gallons per hour
- Gas Gravity Models—70,000—125,000 BTU Input

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PRODUCTS, INC. • • • • •

KO-Z-AIRE Products, Inc., Dept. O10, Red Oak, Iowa

Please send us details on the KO-Z-AIRE Gas Lo-Boy plus information on the complete KO-Z-AIRE line.

● Name \_\_\_\_\_

● Title \_\_\_\_\_

● Firm \_\_\_\_\_

● Address \_\_\_\_\_

● City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

# AMERICAN ARTISAN

OCTOBER 1954

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Founded 1864

Volume 91 No. 10

## WARM AIR HEATING

## RESIDENTIAL AIR CONDITIONING

## SHEET METAL CONTRACTING

Merged with American Artisan are "Warm Air Heating" and "Furnaces and Sheet Metals"

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**Gas and oil highboys**

19 sizes — 7 models from 60,000-  
to 150,000-Btu input.

**Gas and oil lowboys**

83 sizes — 8 models from 90,000-  
to 675,000-Btu input.

**Gravity furnaces**

15 sizes — 5 models from 90,000-  
to 180,000-Btu input.

**Counterflows**

11 sizes — 4 models from 80,000-  
to 150,000-Btu input.

**Conversion burners**

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**Horizontal and unit heaters**

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to 275,000-Btu input.

**Cooling**

53 sizes — 9 models from  $\frac{3}{4}$  to  
 $7\frac{1}{2}$  hp.

**Yes, Mueller Climatrol has all  
these — plus**

- A complete line of residential and commercial boilers
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- Registers, grills
- Humidifiers and accessories
- Gas and electric incinerators and dehumidifiers

D-174

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IT takes more than talk to make a complete line — it takes honest-to-goodness merchandise. And, mister, Mueller Climatrol's got it!

There's always an opportunity to make a Mueller Climatrol sale — because Mueller Climatrol has the broad range of sizes and types you need to meet the exact requirements of *any* heating or cooling job.

Get the specifications on the complete line of Mueller Climatrol equipment. Write today for all-products catalog.



**Mueller Climatrol**

2030Q W. Oklahoma Ave. • Milwaukee 15, Wis.

## the editor's notebook

### Thumbing Through This Month's Artisan

... we learn from the article *Room Air Distribution for Year 'Round Air Conditioning* that the locations of the supply outlets in an air conditioning system have an important bearing on the efficiency of its operation. Authors Straub and Gilman present the conclusions reached in a study conducted at the University of Illinois during which floor registers and floor diffusers at three different locations were tested under winter heating, isothermal and summer cooling conditions.

... and we see how sales leads can develop from door-to-door canvassing of residential neighborhoods as explained in *Cold Canvassing For Hot Leads*. Larry Ingaham, who developed a low pressure sales approach during the 33 years he has been in the warm air heating business, puts his experience to work by instructing his salesmen to offer the company's services in helping to solve heating problems of the home owner. Suggestions for the care and maintenance of the heating plant are made where the customer invites the salesman to inspect the furnace installation. The goodwill built by these friendly calls often leads to sales through recommendations made by the home owner to his friends.

... and we follow — pictorially — the progress of dealer-students attending the short course sponsored by the National Warm Air Heating and Air Conditioning Association and the Uni-



*Enthusiastic reception by the public explains the higher sales frequency of the Sundstrand all-electric oil burners.*

*With a Sundstrand, the most modern concepts of warm air heating are realized.*

*That's not enough; with a Sundstrand, initial low-cost is matched by long-span oil burner performance.*

- ★ DURABILITY
- ★ DEPENDABILITY
- ★ COMPACT DESIGN
- ★ OVERALL ECONOMY
- ★ QUIET OPERATION

... These values and the Sundstrand reputation for the finest in oil heating add up to complete customer satisfaction. Foot or bracket mounted, all Sundstrand oil burners are listed as standard by Underwriters' Laboratories ... and meet all state and local requirements.

A leader in oil heating for 33 years.

*write to*

**SUNDSTRAND ENGINEERING CO.**  
ROCKFORD, ILLINOIS

## the editor's notebook

(continued)

versity of Wisconsin. We see the student as he registers, go with him to a number of the classroom sessions and, finally, see him receive the certificate of completion awarded to each student who completes the four day course.

... and we get tips on selling, suggestions for finding new customers and keeping old ones, pointers on advertising, mailings and other merchandising aids from *35 Ways to Increase Sheet Metal Sales*. The 35 ideas described have formed the basis of the sales programs of various successful sheet metal shops throughout the country. Indirect methods of merchandising, such as building community goodwill, are discussed as well as direct selling approaches.

... and we see that the practice by architects and builders of specifying minimum space for the installation of heating units has brought about certain problems. One of these problems concerns the introduction of sufficient air for proper combustion and ventilation of the heater room, since — if insufficient air is supplied — improper combustion and overheating of the heater closet will occur, creating a fire hazard. The National Warm Air Heating and Air Conditioning Association's field investigation committee points out that *Providing Ventilation, Combustion Air for Confined Heating Units* is essential for safety and offers recommendations for the proper installation of furnaces in utility rooms or other confined spaces.

# The **CHAR-GALE** *4½" duct system...* **Small pipe advantages, PLUS!**



### **40% MORE CAPACITY**

Increasing the diameter of the pipes in a small pipe system from 4 inches to 4½ inches as has been done by Char-Gale using the Char-Gale register-and-box unit, adds more than 40% to the BTU capacity.

Take a good 4-inch pipe system, with all its advantages . . . increase the capacity by a surprising margin . . . top it off with a register-and-box unit engineered to match it . . . and you have Char-Gale's 4½-inch duct system, the finest thing in small pipe installations. The additional capacity of this addition to the Char-Gale line means more adequate handling of the furnace output and provides more BTU's per run.

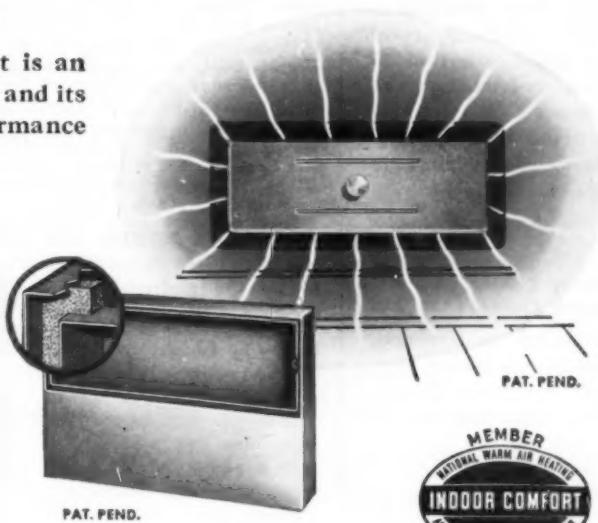
Char-Gale saves you time and labor, by giving you a complete system, well engineered and easy to install. Customer satisfaction and increased profits for you result from this new Char-Gale system with small pipe advantages, PLUS.

### **Char-Gale's NEW register unit**

Char-Gale's new register-and-box unit is an integral part of this new 4½-inch system, and its use is vitally necessary for the proper performance of the system.

The new Char-Gale register distributes heat evenly in all directions, with no drafts or blasts of hot air. It is adjustable, permitting complete balancing at the registers, and has a positive shutoff without noise.

Designed for either dry or wet wall construction, the new Char-Gale register box eliminates the need for a plaster frame. The foam rubber gasket provides a positive seal, with no leakage of air between the register and the register box.



*Literature on this system is now available.*

**CHAR-GALE** **MANUFACTURING**  
**COMPANY**  
**MINNEAPOLIS, MINNESOTA**

## the editor's notebook

(continued)

### Big Home Repair Market Seen in Small Towns

JUDGING by the 1950 Census of Housing, small cities and towns constitute the biggest segment of the home repair and improvement market. The census shows that 61 per cent of the dwelling units built in 1939 or earlier are in the under-50,000 market. More than 62 per cent of the occupied dwelling units in such communities, the figures show, are owner occupied—and home owners are more apt to make extensive repairs and improvements than are persons who do not own their homes.

Approximately 35 million dwelling units in the country are more than 15 years old, and estimates place the figure for annual expenditures on repair and modernization of such homes at some \$6600 million. It is also estimated that for every dollar going into new dwellings, home owners spend more than 50 cents on modernization and maintenance of existing homes. And these estimates do not include the huge annual expenditure in the "do-it-yourself" field.

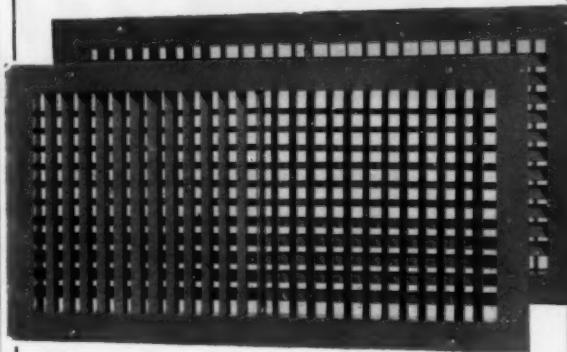
### Humidity Costly To Home Owners

DICK LOCKE, air conditioning controls manager of Minneapolis - Honeywell Regulator Co., writes that the old saw, "It's not the heat, it's the humidity," applies as much to homes as it does to home owners. He points out that the high humidities experienced during the summer just passed may have caused upwards of \$2 billion in damage to U. S. homes. In fact, he states, emphasis should be placed not only on the human comfort benefits of air conditioning but also

## New Heating and Air Conditioning

# GRILLE

### With Detachable Volume Control



- Increased Directional Control
- Eliminates Possibility of Tampering or Accidental Changes
- Meters Air-flow Accurately

New features never before available . . . increased directional control, tamper-proof regulating, unmatched beauty, rugged strength and extreme ease of installation.

Extruded aluminum vanes are individually adjustable. Their unique shape provides greater directional control, and reduces air resistance to a minimum. This means more accurate balancing.

Each vane individually controlled. Operates under spring-loaded tension, eliminating any possibility of deflection pattern being altered by accident or tampering.

Fully-enclosed, wrap-around frame makes grille sturdier, assures easier, safer installation. Entire mechanism is concealed eliminating possibility of "air leaks".

Series "400" A-J Grilles (with or without volume control) available in any size. Choice of vertical or horizontal louvers only—or combination of both, with either louver in front. Both sets of louvers adjustable without removing grille. Available in prime coat, hammered bronze or metallic gray or any standard finish.

### MATCHING RETURN AIR GRILLES AVAILABLE

### NEW Detachable Volume Control

Easy to operate. Accurately meters air-flow from a "Whisper" to a "Full Blast"! A volume control you can depend on! Meters the flow accurately at every stage—from fully closed to fully open. No "dead spots". Louvers move simultaneously in opposing directions. Gear-driven action. System may be balanced without removing outer grille. Available with grille, or can be quickly installed later.



For More Information — Call or Write

### A-J MANUFACTURING CO.

2119 Washington St. Dept. A-10 Kansas City 8, Mo.

## the editor's notebook

(continued)

on the protection it provides for things like wood, paint, wallpaper, etc., by holding down the humidity.

He noted that "one study revealed that a 3 ton air conditioner takes 64 quarts of water from the atmosphere of an average six to eight room house in a single day. Removing this moisture and lowering the relative humidity in the house greatly lessens the chances of damage to the house and household equipment." Another survey, he said, shows that home owners who installed air conditioning saved from \$30 to \$550 per year in costs of cleaning clothing, rugs, furniture and stored articles because indoor humidity was decreased and the air was cleaned by filtering.

### Union Warned It's Aiding "Do It Yourself"

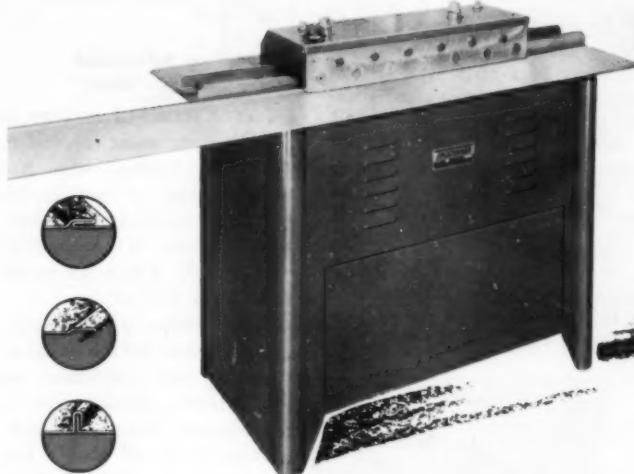
I WAS INTERESTED in the comments made by D. B. Clayton, Sr., president of the National Electrical Contractors' Association, in his address to the 3500 delegates attending the 25th International Brotherhood of Electrical Workers (AFL) convention. Mr. Clayton pointed out that "do it yourself" addicts have come into prominence in a new billion dollar industry partly because of high costs in the construction field. He said that conditions of employment have been established which are not accepted by the public, and are considered uneconomic for the construction industry. He listed these as:

- 1) Excessive use of overtime at excessive premium rates;
- 2) unreasonable compensation for travel and subsistence;
- 3) premium compensation for so-called hazardous work;
- 4) unreasonable maintenance require-

# LOCKFORMER

*...even after 17 years*

YOU'VE STILL GOT TO  
SEE IT TO BELIEVE IT!



When you first see a Pittsburgh formed on a Lockformer, you marvel both at the speed and the perfect forming. Then you begin comparing the time it took with that needed on a hand brake. You figure the number of hours you'd save per day—then multiply that number by your local hourly wage rate.

When you arrive at this point, there's no use saying, "I still don't believe it!" Eventually you'll do what every sheet metal man does; you'll order a Lockformer. If you want to hurry the process, just ask yourself this question: "What can I possibly gain by waiting?"

And as we both know, the answer to that one is "Nothing!"



One man with a Lockformer makes more Pittsburgh Locks than sixteen men with eight hand brakes.



JUST OFF  
THE PRESS  
...the brand new  
Lockformer Catalog.  
Send for your  
free copy.

**THE LOCKFORMER CO.**  
4615 WEST ROOSEVELT ROAD CHICAGO 50, ILLINOIS

## the editor's notebook

(continued)

ments for temporary light and power; 5) costly vacation plans; 6) uneconomic welfare plans; 7) unsound ratios of apprentices to journeymen; 8) unsound ratios of non-working foremen to journeymen; 9) interference with foremen's operations by stewards; 10) restrictions on the use of labor saving tools; and 11) restrictions on the training of apprentices.

"While these fringes may have once appeared sound," he said, "it is hard to justify them when they bar both contractor and workman from work we once enjoyed. It is fine to have these rates of pay and fringes, too, but many home owners and small business concerns cannot afford to pay for one hour's work, more than they earn in two or three hours."

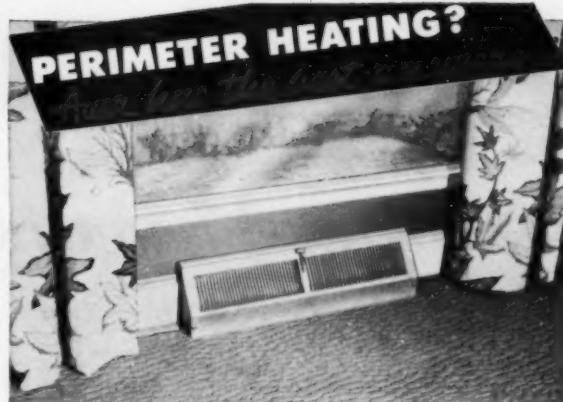
These remarks were directed to the members of one union; however, they might be well considered by leaders of other construction unions as well.

### Likes Hugh Reid's Pattern Page

WE WERE PLEASED to hear that James L. Howe is enjoying his monthly copies of American Artisan. "I am very much interested in all the articles," he writes, "however, the feature I particularly look for is Hugh Reid's sheet metal pattern layout."

### Prescribes Shorter Concentration Periods

"BUSINESS MEN tire themselves by pushing themselves to the limit of their concentration span," observes Dr. Walter Woodward, industrial psychiatrist. "An executive can concentrate on what he is doing for about two hours before his attention wanders. It takes a while for his mental energy to recover, and



## Auer "Perfusaire" TRADE-MARK

● The new *low-cost* baseboard decorator style perimeter diffuser illustrated above is only 18" long, but with a capacity of 4 to 8 foot units. Designed for easy installation in or against plastered walls, inside or outside the baseboard and in new or old construction. It has a pre-cut hole for 2 1/4 x 12" duct openings and knock-outs to accommodate 2 1/4 x 14" where needed. It is the answer to uneven wall installations—so difficult with long diffusers.

"Perfusaire" distributes air evenly over a wide fan-shaped area, and is equipped with a built-in damper for system balancing. It is an ideal unit for combination heating and cooling systems.



Auer "Perfusaire" test photo showing huge fan-shaped air pattern, ideal for heating and combination heating and cooling systems.

Clip fasteners permit a means of attaching 2 1/4 x 12" or 2 1/4 x 14" duct without cutting the diffuser.

### FLOOR TYPE

For floor type perimeter and intricate "narrow-space" installations, Auer can fill your needs from its complete "DRP" line of registers in standard sizes.



Auer DRP 2 1/4 x 14" floor perimeter diffuser.

Auer DRP floor perimeter diffuser (4 and 6" widths, 10, 12 and 14" lengths).

Write for full details on low cost "Perfusaire" and other perimeter diffusers. Ask for Bulletin P-54.

**Auer**

REGISTERS  
and GRILLES

**THE AUER REGISTER CO.**

6602 Clement Ave. • Cleveland 5, Ohio

## the editor's notebook

(continued)

meanwhile he is frustrated because he can't get on effectively with his work."

Dr. Woodward prescribes that you limit your concentration to about 50 minutes, with a 10 minute break following. It is possible to repeat this routine four times without getting tired, he says, and it actually doubles the normal concentration span without imposing the penalty of great fatigue and inability to work.

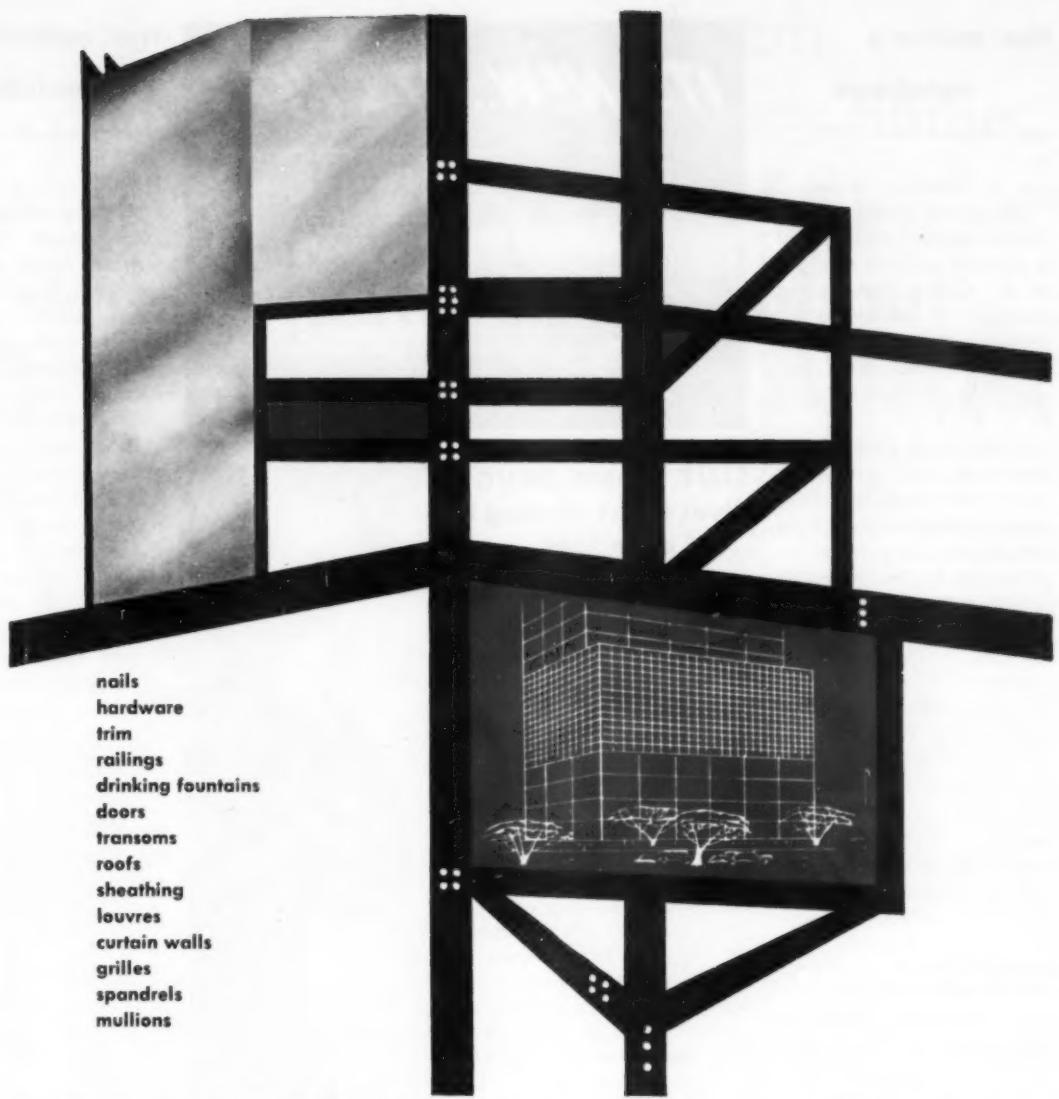
### Keeping Informed Is Business "Must"

I RECENTLY had occasion to recall a statement credited to Thomas Edison, who had been asked to explain his many successful inventions. Mr. Edison is reported to have said, "I start where the last man left off."

This seems to be an excellent formula for the warm air heating and residential air conditioning dealer who is continually seeking new techniques that will enable him to install the equipment he sells faster and better. Once a new method has been perfected, the increased efficiency and economy resulting from its use can be passed along to the consumer in higher quality workmanship and lower costs.

One way to find out where the last man left off is to stay abreast of the trends of the industry. And one good way to do this is to read the latest and most complete reports obtainable.

For example, recent reports from the University of Illinois have brought out some problems involved when crawl space heating is employed in a home. The most up-to-date recommendations have been made by authors Konzo and Gilkey in the April, May and June is-



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For buildings with that modern flavor, more and more they're using stainless. For Crucible Rezistal® stainless steel resists atmospheric attack even in industrial areas. It's attractive to start with, and with *minimum care, stays attractive for life.*

What's more, Crucible stainless — readily fabricated into a bewildering assortment of complex structural shapes — is quick and easy to install, reflecting actual cash savings for building owners even before the first tenant moves in. And since stainless is so strong and tough, it withstands hard knocks of all kinds, and im-

parts additional structural strength to components of which it is a major part.

That's why Crucible stainless steel gains favor increasingly with architects and builders all over the country — for new buildings and for renovation of old buildings. It's the *truly modern way to go modern.*

Let us work with you on applications of stainless steel, the modern architectural material. For reference information on the uses of Crucible stainless steel in modern business structures, call Crucible. There's no obligation, of course.



### CRUCIBLE

first name in special purpose steels

54 years of *Fine* steelmaking

### STAINLESS STEELS

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REX HIGH SPEED • TOOL • REZISTAL STAINLESS • MAX-EL • ALLOY • SPECIAL PURPOSE STEELS  
Canadian Distributor — Railway & Power Engineering Corp., Ltd.

## the editor's notebook

(continued)

sues of American Artisan.

The rapidly developing residential summer cooling field is reported in detail regularly in the Artisan. As but one example, 23 articles on the fundamentals of summer air conditioning have been presented in the current series by S. W. Reid.

Curtain wall panels, their fabrication and erection—a great new field for sheet metal contractors—has been and is continuing to be reported on by the American Artisan staff.

Many of our subscribers write us for information on a personal basis; in this way we get to know them better and can serve them more effectively. If you need information about "where the last man left off" in the warm air heating, residential air conditioning or sheet metal contracting field, write us about it.

### Safety Council Aids Small Business

THE NATIONAL Safety Council informs us that many small businesses and associations are taking advantage of the council's small business program which was designed to help in the prevention of employee injuries. Many industries and local groups, the council says, have reported injury rate reductions exceeding 50 per cent after only a few years of organized safety effort.

### Urges Employers to Protect Welfare Funds

THE UNITED States Chamber of Commerce is urging employers to play a stronger role in assuming responsibility for administering the rapidly growing employee welfare funds, which now total an estimated \$22 billion. It points out that the Taft-

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### ODF\* TANK GAUGE gives exact reading level of oil in tank at point of delivery!

Located outside of building at fill pipe, this new, easy-to-read fraction calibrated, pressure-tight gauge shows the exact level of oil in tank at all times! Saves costly, time consuming trips to basement and unnecessary unreeling of hose... Permits delivery without disturbing customer and eliminates spills as there is a "stop filling" indicator on calibration. Made of weather-proof materials throughout with thermometer indicator securely encased in plastic dome that will not fog or cloud up. No gears, cams, magnets, tapes or intricate mechanisms to get out of order. Write for complete information and low cost unit prices on this modern "delivery point" remote reading gauge today.

\*OIL DEALERS' FRIEND

TELLS WHEN OIL  
IS NEEDED

... HOW MUCH  
IS NEEDED

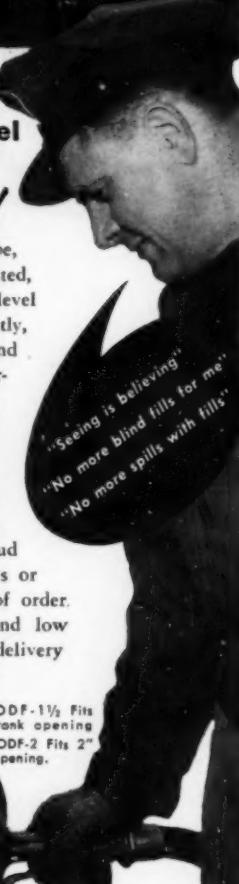
... WHEN TO  
STOP FILLING

TYPE ODF-1 1/2" Fits  
1 1/2" tank opening  
TYPE ODF-2 Fits 2" tank opening.

- Weather-tight plastic dome calibration assembly.
- Easy-to-read indicator.
- Shows exact reading level at all times.
- Made of quality oil, weather and corrosive resistant materials.
- Durable, heavy-duty construction.
- No complicated mechanism.
- Simple and quick to install.
- Lowest cost remote reading gauge on market.

On guard—24 hours a day

KRUEGER *Sentry* GAUGES  
GREEN BAY • WISCONSIN



## the editor's notebook

(continued)

Hartley Act provides that unions and management both take part in administering welfare funds covered by collective bargaining agreements; however, unions sometimes have assumed the major role in governing these funds, although employers are the chief contributors.

It is important to recognize, the chamber says, that it is good business and good human relations for private industry to take an active interest in the administering of these welfare funds. They should be handled so that benefits will accrue only to the working people for whom they were intended, and this is the responsibility of management as well as of the unions.

### Predicts Booming Market For Water Heaters

R. W. SIMPSON, vice president and general sales manager, John Wood Co., writes me that a tremendous sales potential is provided by the growing market for automatic water heaters. He predicts that more than a million American homes will be in the market for new automatic water heaters in the coming 12 months, "either for new installations or for modernization programs."

### Expanding Market for LP-Gas

VICTOR HAWKINS, director of research for Capper Publications, Inc., writes that the bottled gas market is "on the boom." It is estimated, he says, that nearly 5.5 billion gallons of LP will be used in 1954 — about five times the quantity sold nine years ago.

*Clyde M. Barnes*

EDITOR

Sure, there's a Sunbeam  
air conditioning unit for every home  
...every climate...every fuel

**but what you'll like best about**

**SUNBEAM**



**THE NEW WYANDOTTE** (Model GUA)—industry's most thoroughly tested winter air conditioner—is an all-new design. Slender, modern and efficient units come in sizes to meet every requirement for utility-room installation.

is that the Sunbeam line adds up to a complete quality line you trust and *your customers* feel confident in buying. You know Sunbeam's

**QUALITY**—Constant tests assure the dependable operation and longer life of every Sunbeam unit. The New Wyandotte (Model GUA), for example, in the industry's most thorough test, is completely assembled at the factory and operated as if it were installed in a home. Tests include operation of the blower and controls as well as fire testing.

**RESEARCH**—Each Sunbeam unit has been carefully designed and skillfully engineered. Sunbeam precision means your installation goes faster and easier; gives your customers the utmost in fuel economy.

**COMPETITIVE PRICE**—Sunbeam's unusually complete line of summer and winter air conditioners is realistically priced to give you easier selling and greater profits. In the Sunbeam line there's just the right unit to meet each customer's budget.

**NATIONAL ADVERTISING**—Sunbeam is making 17,000,000 home owners sit up and take notice with its full-page ads now appearing in *The Saturday Evening Post*, *American Home*, *Better Homes and Gardens*, *Small Homes Guide*, and *Home Modernizing*. They help pre-sell prospects on the Sunbeam products you install.

**MERCHANDISING**—Back of Sunbeam's national advertising is one of the industry's most liberal cooperative advertising plans, which includes newspaper, radio and TV spots, home and builder shows, fairs, and exhibits. Also available are special Merchandising Kits to make your selling job more effective.

**SEE or CALL** your nearest Sunbeam distributor for detailed information about Sunbeam winter and summer air conditioners. You'll find him listed in the Yellow Pages of your telephone directory under "Furnaces" or "Air Conditioning Equipment and Supplies." **Sunbeam Air Conditioner Division, American Radiator & Standard Sanitary Corporation, Elyria, Ohio.**

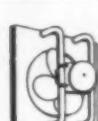
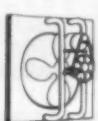
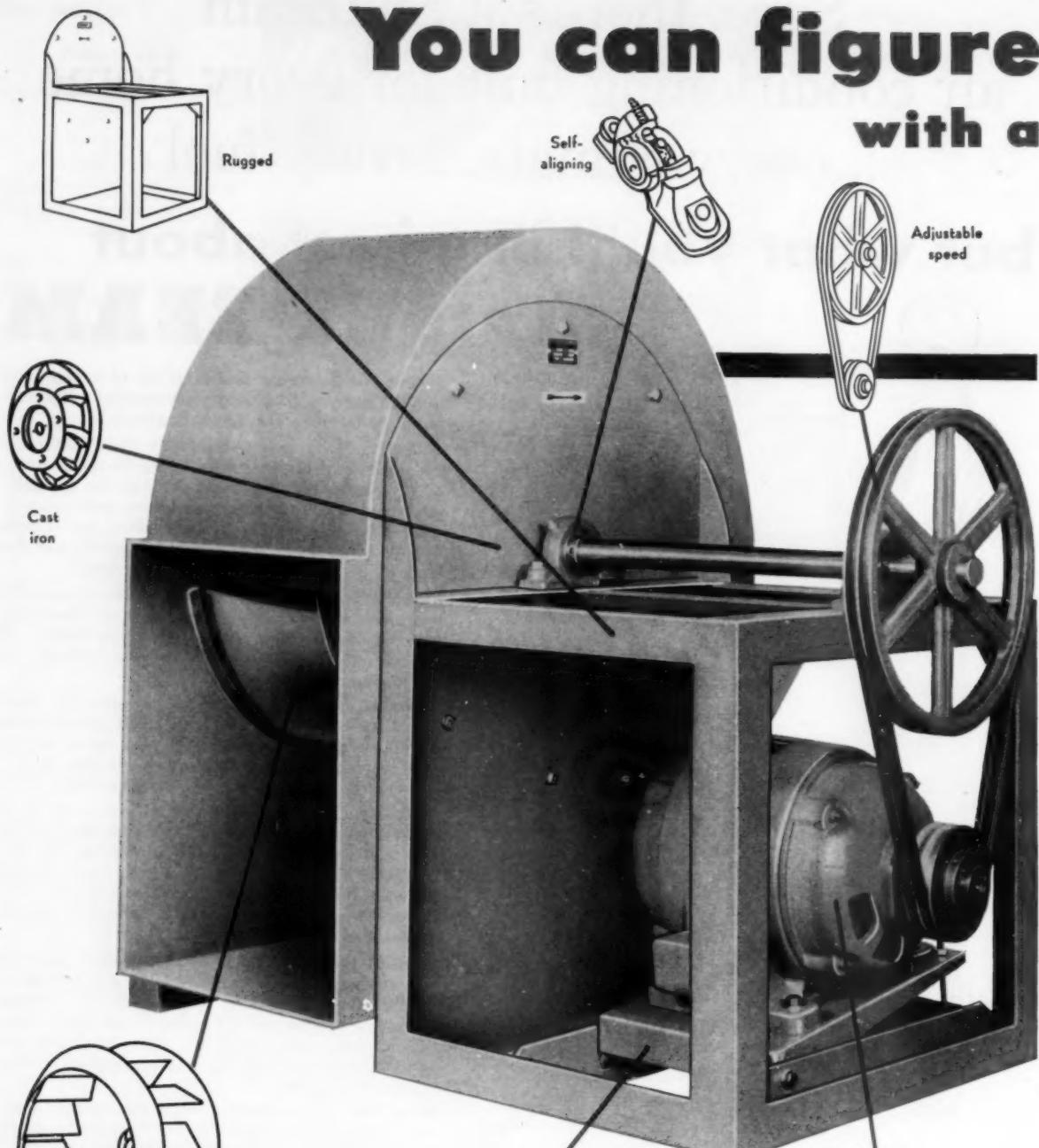


**AMERICAN-Standard**  
**SUNBEAM AIR CONDITIONER DIVISION**  
ELYRIA, OHIO

Executive Offices: 40 W. 40th Street, New York 18, N.Y.

Serving home and industry: AMERICAN-STANDARD • AMERICAN BLOWER • CHURCH SEATS & WALL TILE • DETROIT CONTROLS • KEWAENE BOILERS • ROSS EXCHANGERS • SUNBEAM AIR CONDITIONERS

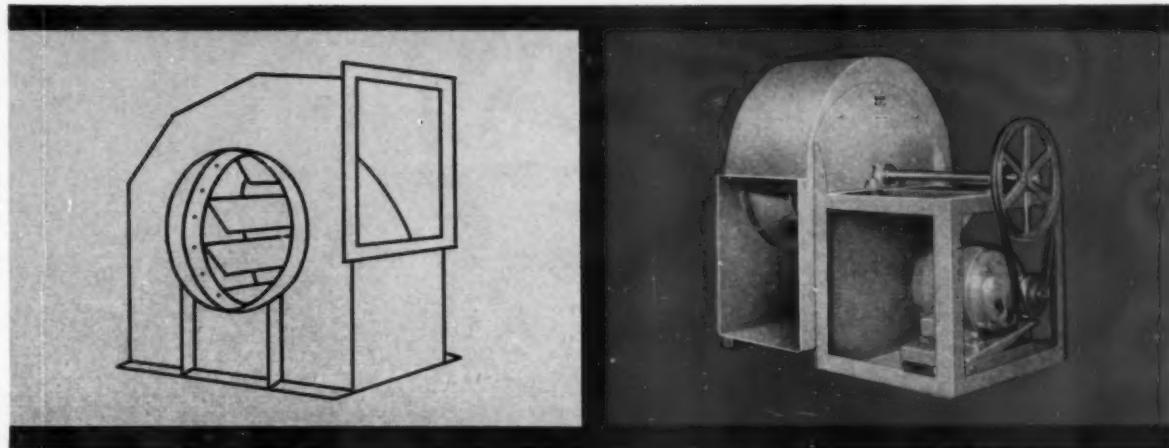
# You can figure with a



# jobs right on the nose

## Peerless Backward Curve Blower

With Peerless middle-size job plan, you call, write, or phone the factory for quick engineering help on middle-size jobs just as if they were big ones. Peerless salesmen also use this direct-to-the-factory service to help their customers bid jobs accurately.



### ... HERE'S WHAT YOU LOSE WITH AN UNKNOWN BLOWER

When parts are not engineered or built by the blower manufacturer, they are purchased all over the country. Efficiency ratings may suffer and you may be forced to protect the job with a larger, more expensive blower than the job requires. Thus, your bids may be higher and you may have fewer jobs and smaller profits. You may not get factory help on engineering problems.

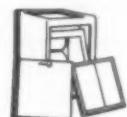
Specify and install the backward curve blower that eliminates doubts — Peerless.

### ... HERE'S WHAT YOU GAIN WITH A PEERLESS BLOWER

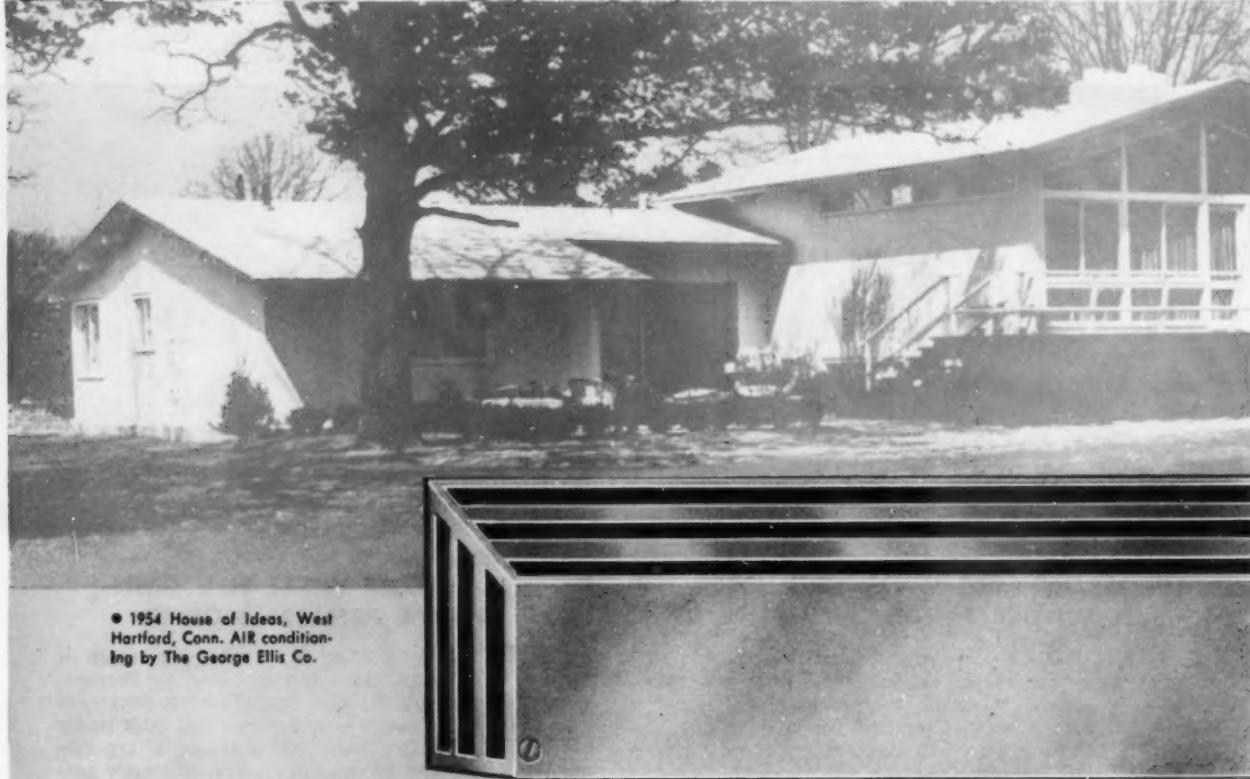
Where bidding is competitive, there is just one "Best Blower Buy" — Peerless. From hub to motor every Peerless Backward Curve Blower is engineered and built under the Peerless roof. All components are job-rated and job-matched. Top efficiency permits you to select the exact size blower needed on any job. With proper sizing, you make lower bids and larger profits. To help you land more jobs, Peerless gives you any needed engineering help. Write, wire, or phone Peerless when bidding the next job.

**PEERLESS ELECTRIC**  
FAN AND BLOWER DIVISION  
THE PEERLESS ELECTRIC COMPANY • 1405 W. MARKET ST. • WARREN, OHIO

**Peerless**  
**Electric**



# TITUS new



• 1954 House of Ideas, West Hartford, Conn. AIR conditioning by The George Ellis Co.

Only newest, finest, most efficient heating and cooling equipment was used in this 1954 House of Ideas. Titus Perimeter Diffusers were specified because comparison showed they had no equal. They were years ahead in features, in acceptance, in performance.

#### **GREATEST FREE AREA LOWEST PRESSURE REQUIREMENTS**

Cool air easily forced high up wall. Maintains broad pattern for heating. No draft or stagnation areas. Handles warm or cool forced air with equal efficiency.

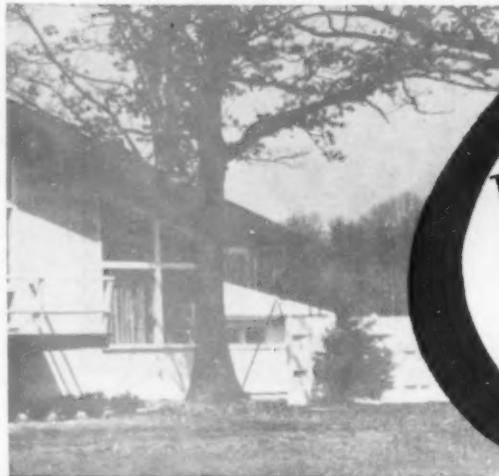
#### **UNBEATABLE LOW COST**

One boot and damper size. Easy to stock and install. No roughing-in. More complete factory assembly. No metal cutting. Special design mounting slips. Adds strength and rigidity to boot. Eliminates boot flutter and by-pass of air.

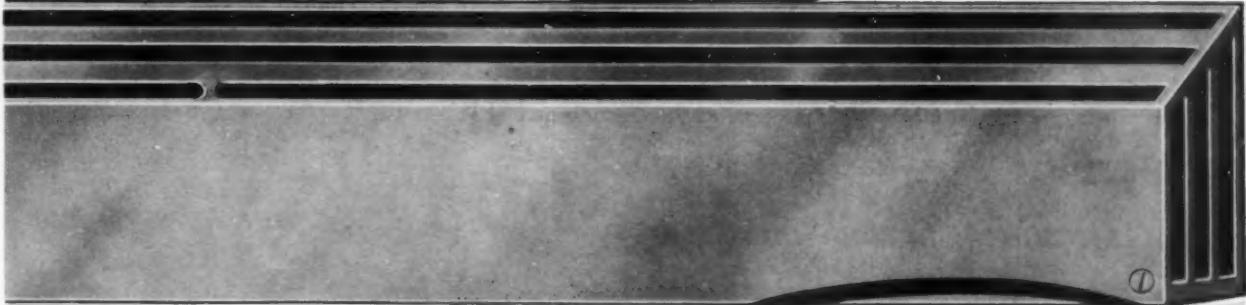
#### **CURVED BAFFLES UTILIZE ALL FREE AREA, GIVE 180° DIFFUSION**

Direct air where it is needed. Eliminate turbulence. Direct air through end slots for 180° diffusion. Circulate air gently with no draft, no noise.

# Perimeter Diffusers



Specified for  
House & Garden's  
1954  
HOUSE of IDEAS



## ONLY 2 PARTS

Back, sides and top welded together. Simplify installation. Two screws only are used to fasten diffuser because special design mounting slip locks boot in place with less labor, less expense.

## CHOICE OF 3 MODELS

No. 50: 17" in length. No. 100: 30" in length.  
No. 150: 60" in length. No. 150 consists of 2  
No. 100 diffusers joined with clips.

## NEW STYLING

Lower, narrower silhouette. Streamlined. Recesses in baseboard. Allows easy drape movement because of tapered ends.

SEND FOR NEW  
**AUTHORITATIVE MANUALS**  
ON COMPLETE PERIMETER DIFFUSER STORY

→ **MAIL COUPON TODAY**

**TITUS, INC., WATERLOO, IOWA**

Gentlemen: Please rush me the following FREE information.

New 1954 Perimeter Diffuser Catalog       Booklet on Trends in Warm Air Heating  
 New 6-page Installation Design Manual No. 1       Display Kit Information

Sample Diffuser  
(Invoice sent with sample)

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_

*For year-round home air conditioning*

# Which do you prefer- constant or intermittent fan?

*Heating-cooling engineers disagree*

Constant or intermittent fan has become the subject of some friendly controversy among heating-cooling engineers in the year-round residential air-conditioning field.

Many engineers insist that only constant fan controls give satisfactory performance, while others contend that intermittent fan operation

is preferable. Both sides have good reasons for their recommendations (as outlined below). But the Honeywell T 830 control system, with intermittent or constant fan, offers both you and your customers exactly what you want: Complete adaptability to best fit the type of installation involved.

## *Intermittent fan advantages*

1. Relative humidity is reduced and held more constant. Intermittent fan operation allows the condensation on the evaporating coils to drain, instead of evaporating back into the system.
2. Fan runs less, cuts down on power bills.
3. Eliminates customer complaints of fan running without compressor.

## *Constant fan advantages*

1. Moving air prevents stagnation, reduces stratification of room air, gives maximum cooling. Constant flow of air over the thermostat lowers thermostat differential.
2. Continuous fan keeps cooling equipment noise level constant.
3. Constant fan provides more even room temperature control, due to air movement. Fan can be used for pure circulation or ventilation when no cooling is desired.

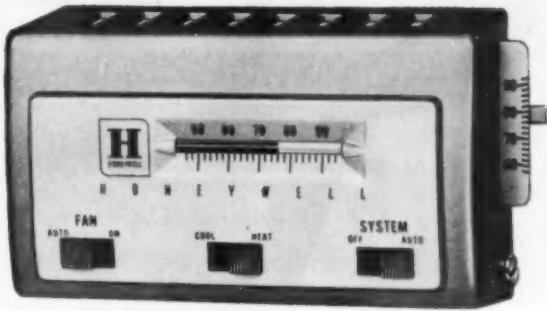
## The Honeywell T 830 offers you both!

*Backed and serviced by Honeywell's nationwide service organization*



**New W 203 Control Panel**

*Heavy-duty, pre-assembled unit.* This sturdily constructed heating-cooling control panel gives faultless year-round operation. Incorporated accessory terminals for damper motors, cooling tower pumps, solenoid valves, refrigeration pressure controls.



**New T 830  
Heating-cooling Thermostat**

*Precision-made, trouble-free.* This high-precision heating-cooling thermostat gives complete year-round control. It has three manual switches. One for heating or cooling. One for automatic or constant fan. And one for automatic thermostat control or positive "off." Sturdy bimetal element. Models of the new T 830 are available for either heating and single stage cooling, or heating and two stage cooling.

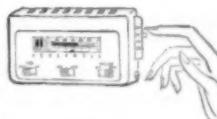


**New M 828C Damper Motor**

*More rugged, more powerful.* New, highly-durable, two-switch, unidirectional motor, gives increased torque. Delivers more power, more positive control in operating dampers for by-pass air conditioning system.

### *Features finger tip control*

Here's a precision-built system that puts year-round heating and cooling control at your customers' finger tips. It's a system that you can feature as the finest in the industry. And one that is built to deliver the kind of permanent trouble-free performance that means complete satisfaction for your customers, with fewer service headaches for you.



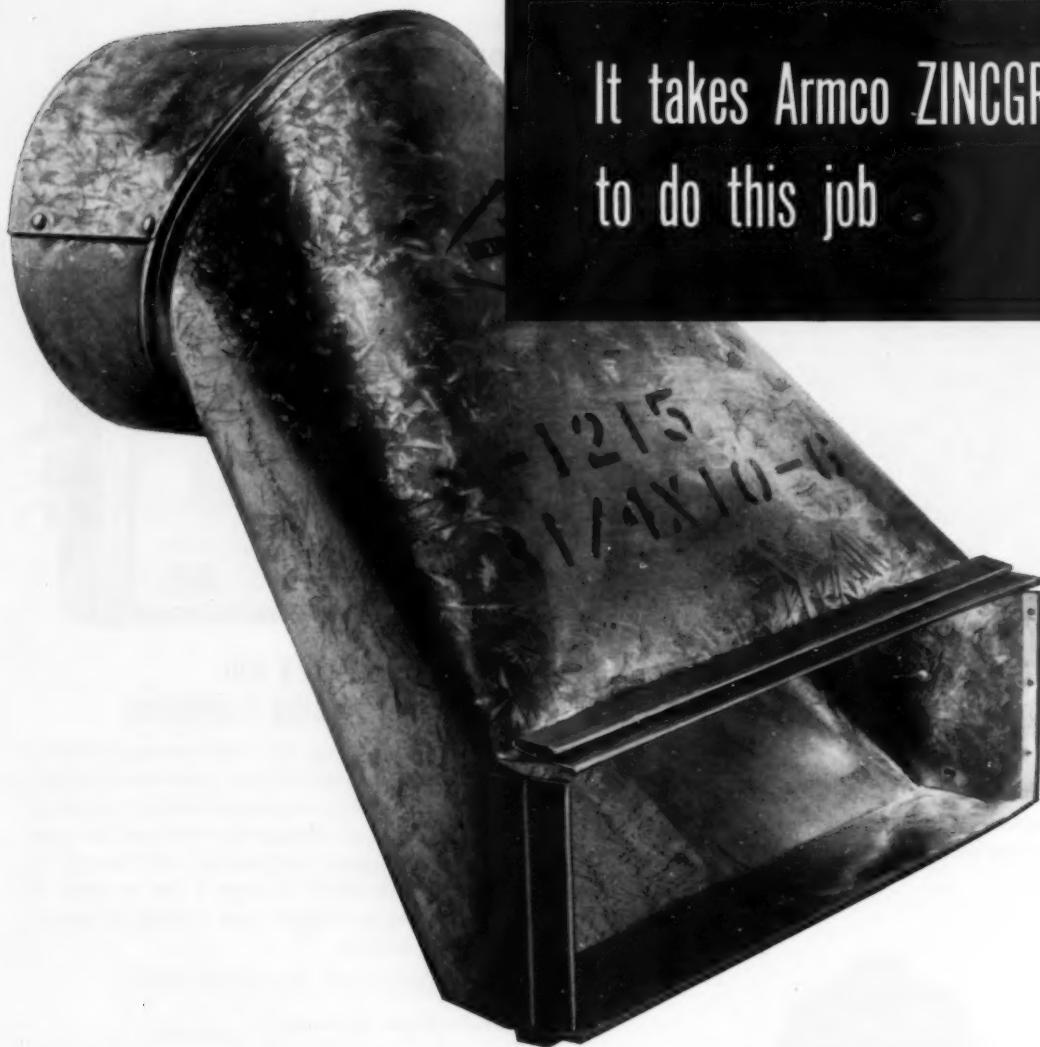
For complete details on the entire Honeywell line of air conditioning controls, call your local Honeywell office. Or write the home office — Honeywell, Dept. AA-10-174, Minneapolis 8, Minnesota.

MINNEAPOLIS  
**Honeywell**



*First in Controls*

112 OFFICES ACROSS THE NATION



It takes Armco ZINCGRIP.  
to do this job

Here's a boot for heating and air-conditioning ductwork. The fabricator has found that making this part calls for Armco Steel ZINCGRIP—the first zinc-coated sheet ever to make this fitting consistently *without flaking* of the coating at some point.

#### WHY THERE'S NO FLAKING

Armco ZINCGRIP is made by a special patented hot-dip process that produces a zinc coating without a brittle iron-zinc alloy layer next to the base metal. In ordinary galvanized sheets this brittle layer will crack when the sheet is formed severely. Then the zinc coating will flake or break away entirely from the steel base. Not so with Armco ZINC-

GRIP. Its full-weight coating will stretch and take as severe forming or drawing as the fully-annealed base.

Armco ZINCGRIP Commercial Quality is supplied in standard gages and sizes. It is priced competitively with old-fashioned galvanized steel sheets.

#### A PAINT-HOLDING SHEET TOO

Armco ZINCGRIP is also supplied with a mill-applied paint-holding surface. This grade, known as Armco ZINCGRIP PAINTGRIP, has all the forming and deep-drawing qualities of ZINCGRIP plus a finish that takes paint immediately and preserves it longer.

**ARMCO STEEL CORPORATION**  
5024 CURTIS STREET, MIDDLETOWN, OHIO



SHEFFIELD STEEL • ARMCO DRAINAGE & METAL PRODUCTS, INC. • THE ARMCO INTERNATIONAL CORPORATION

### SMCNA Appoints Committee, Task Group Chairmen

A. J. SABATHNE, past president of the Sheet Metal Contractors' National Association, Inc., has been named chairman of the association's council of chapter representatives. Other chairmen recently appointed by President Dee Cramer include Angelo Hoffmann as chairman of the special activities fund committee and of the duct construction manual committee; R. W. Friday as head of the contractor insurance committee; Paul Stromberg as chairman of the NJBSJD (National Joint Board for Settlement of Jurisdictional Disputes) committee; and Harvey Wallace as chairman of the curtain wall task group. Continuing as chairmen of their respective committees are W. A. Kuechenberg, labor relations general committee and labor relations adjustment committee; Clarence J. Meyer, committee on national affairs; W. J. Perkinson, sheet metal manuals committee; Charles DeLaughter, cost and estimating committee; and Roland Biersach, sheet

metal fabricators committee. The apprentice training committee has been divided into two groups—the joint committee conducting the annual joint sheet metal apprentice contest, with Frank Kramer as chairman, and a committee whose duties include stimulating interest in sheet metal as a vocation and the development of better apprentice training. This committee will be under the chairmanship of Joseph Stieglmeier.

### National Oil Heat Council To Publicize Industry

A MAJOR national public relations program for oil heat and its equipment, including newspaper and other advertising, cooperation with home builders and other activities, is to be undertaken through a newly organized promotion agency, the National Oil Heat Council. The board of directors of the Oil-Heat Institute of America, including equipment manufacturers and fuel oil dealers, voted unanimous endorsement of the program.

### Trend of Household Formation Means More Sales for Heating Dealers

ACCORDING TO A REPORT published in the *Monthly Letter on Business and Economic Conditions* of the National City Bank of New York, which compares housing starts with the number of marriages and growth in the number of households, there is unlikely to be any overbuilding of homes for

constitutes a dwelling unit. Changes in the number of households are affected largely by marriages, divorces, deaths, and doubling or undoubling of individual family units.

The number of marriages has declined steadily (save for a temporary upturn due to the Korean war) since

Number of Marriages, Increase in Number of Households, and Number of Married Couples Without Households

Year	Number of Marriages	Increase in Households	Married Couples Without Households
1940	1,595,879	504,400†	1,946,435
1946	2,291,045	711,000	*
1947	1,991,878	1,151,000	2,861,000
1948	1,811,155	1,582,000	2,455,000
1949	1,579,798	1,387,000	2,156,000
1950	1,667,231	1,485,000	2,016,000
1951	1,621,159	1,027,000	1,758,000
1952	1,562,579	937,000	1,558,000
1953	1,553,000	956,000	1,546,000

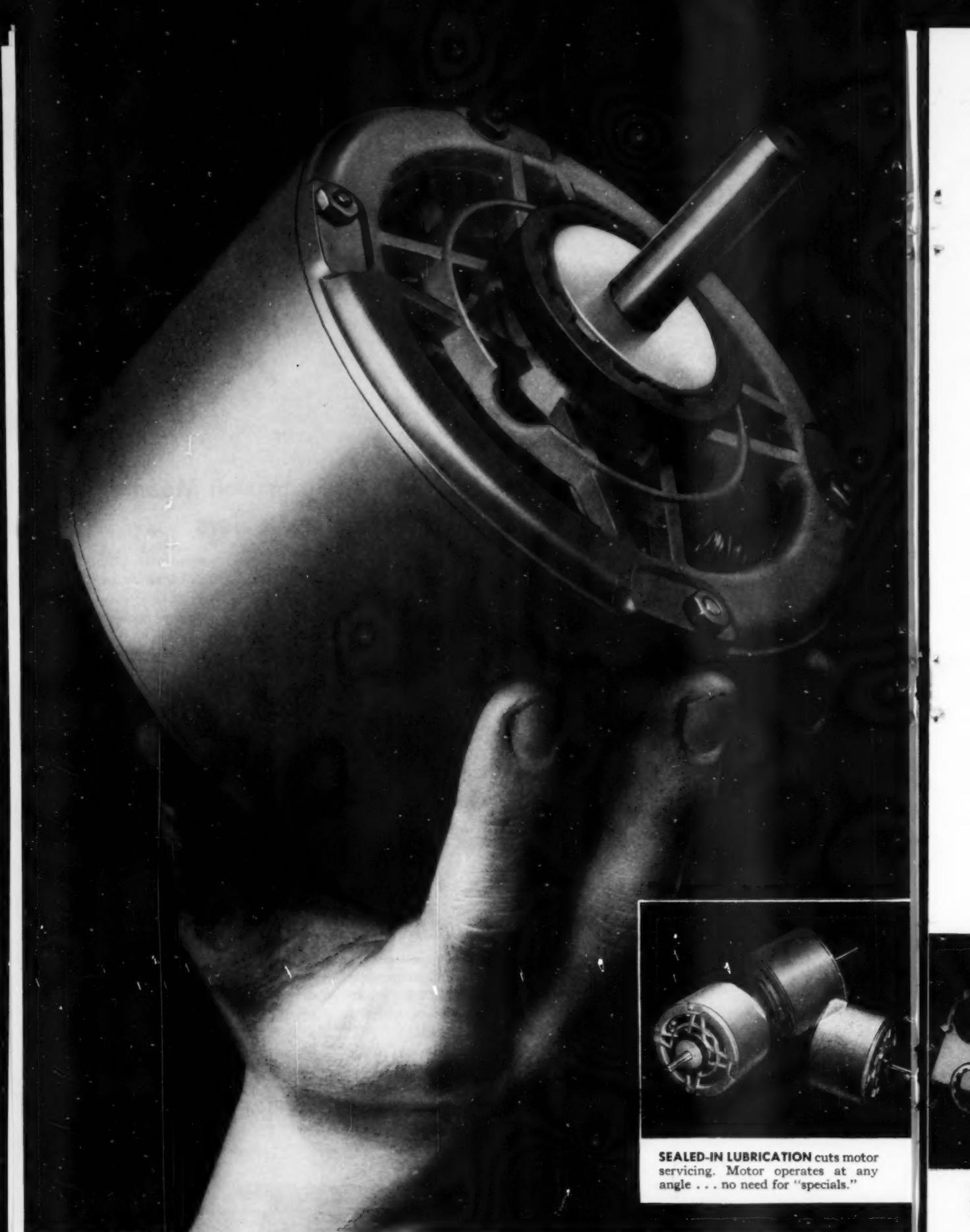
Figures on marriages cover calendar years, with 1953 estimated. Figures on households and on married couples without households represent estimates for April of each year. \*Not available. †Average annual increase 1930-40.

many years to come. From these figures, it will be seen that a big market for heating and cooling equipment is indicated.

Some indications appear in the estimates of the Bureau of the Census based on annual samplings throughout the country. A *household*, according to Census Bureau definition, includes persons who occupy a home that

the peak reached in 1946 with the demobilization of World War II veterans. At that time the number of households established was limited by the acute housing shortage (reflected also in the number of married couples without households, or doubled up with relatives), but household formation rose to high levels during 1948,

(Please turn to page 24)



**SEALED-IN LUBRICATION** cuts motor servicing. Motor operates at any angle . . . no need for "specials."

# G.E. announces new shaded-pole motors rated thru 1/6 hp

**Light, small and exceptionally efficient, these motors offer many advantages to ventilating-equipment designers**

Now! General Electric brings manufacturers of air-moving equipment all the benefits of shaded-pole construction in a 1/6-hp motor! It's the completely new G-E KSP39 frame motor . . . and the increased power gives you wider design latitudes than ever before with the proved, low-cost G-E shaded-pole line.

Among the many benefits of this new motor is an operating efficiency that makes it easier to provide for motor ventilation in the equipment you design. In addition, because this new motor draws less current it is ideal for air conditioner use since additional current can be diverted to the compressor motor.

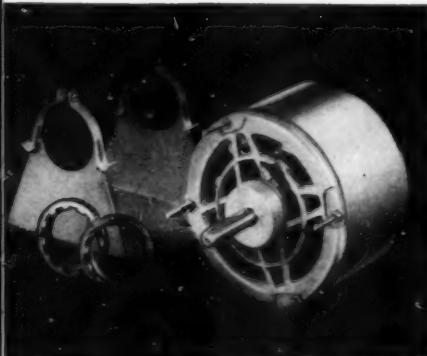
**Other features** include small size, forced internal cooling provided by aluminum fan blades; sealed-in lubrication; mounting versatility and all the other advantages G-E shaded-pole construction offers.

**Whatever your products** . . . room air conditioners, furnace blowers, ventilating fans, unit heaters and coolers or the like . . . you'll find new opportunities to streamline your product and increase its saleability with a G-E shaded-pole motor.

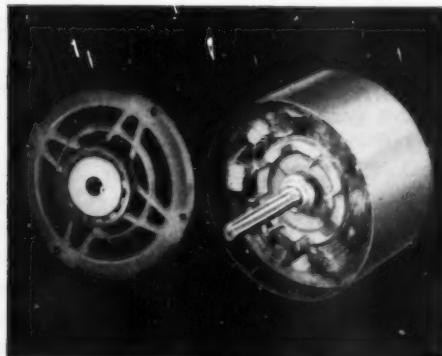
**Low in cost**, this new "39" frame motor is available with single or double shaft and in ratings from 1/12 thru 1/6 hp. For full details on this and other motors in the shaded-pole line, contact your nearby G-E Apparatus Sales Office today . . . or write for bulletin GEA-6134 to General Electric Company, Section 704-25, Schenectady 5, N. Y.

*Progress Is Our Most Important Product*

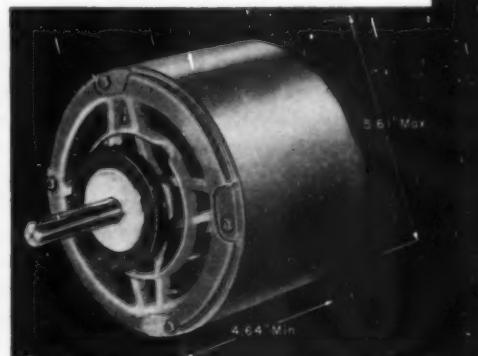
**GENERAL**  **ELECTRIC**



**MOUNTING VERSATILITY** helps solve design problems. Use resilient cradle-base, end-ring or pulley-end mounting.



**FORCED INTERNAL VENTILATION** from aluminum fan blades means cooler operation, longer motor life.



**SMALL SIZE** of this new motor makes it possible to design smaller, better-looking products, save on material, too.

## FHA Hires More Property Inspectors and Appraisers

THE FEDERAL HOUSING Administration reports that 150 new property inspectors and appraisers have been hired to handle the rapidly growing number of applications for FHA insurance of home mortgages. Commissioner Norman P. Mason said that the increased activity already has resulted in a backlog. He pointed out that in January, there were applications for mortgage insurance for approximately 37,000 units of housing in process, including both home and project mortgage types. Through June, he said, the figure had risen to about 64,000, or an increase of about 75 per cent.

The FHA insured mortgages last year on 151,800 new homes, as well

as on 120,500 existing homes, according to FHA's annual report covering the calendar year 1953. Three-fifths of the new homes financed under Section 203—the major home mortgage program of the FHA—were valued at amounts between \$8000 and \$12,000. The proportion above \$12,000 increased from 21.1 percent in 1952 to 23.5 percent in 1953. The typical new home on which the FHA insured a mortgage was a single-family five-room house with 924 sq ft of floor space, valued at \$10,140. The house was about the same size as its 1952 counterpart, but the value, as estimated by the FHA, was \$118 (about 1 percent) higher.

## Household Formation Means More Sales

(Continued from page 21)

1949 and 1950, as more new houses were built and as many of the large, older houses were remodeled and converted into smaller apartments.

From 1950 to 1952 the rate of increase in the number of households slowed down, but in 1952 and 1953 it was still estimated in excess of 900,000 units annually. While this was almost double the prewar average, it was below the 1952 and 1953 officially reported housing starts of 1,127,000 and 1,104,000 respectively.

Population experts generally have expected the decline in family formation to continue over the next few years, because of the low birth rates of the depression years and the smaller number of young people now coming into the marriage ages. This has lead to bearish projections of home building until such time as the higher birth rates following the outbreak of World War II bring an upsurge in

family formation and housing demand in the early 1960's.

However, demand for housing has been sustained by a number of other important influences, and this may continue for these reasons:

- 1) The increase in the size of families;
- 2) the undoubling of family units;
- 3) decrease in conversions of older homes;
- 4) the shifting of population;
- 5) general prosperity and wider distribution of incomes; and
- 6) the liberalization of FHA mortgage credit terms.

## GAMA Forms Conversion Burner Speaker Bureau

THE CONVERSION BURNER division of the Gas Appliance Manufacturers Association has established a bureau which will supply speakers for meetings of builders, dealers, utilities and other groups interested in developments in the conversion burner field. The speakers are prepared to give tips on special techniques for selling

## Inventories Follow Pattern of 1948-49

THE BEHAVIOR of factory inventories this year follows closely the pattern of 1948-49. For those who are concerned about the continued high level of finished goods stocks held by manufacturers, it should be pointed out that such stocks in the past have tended to move in counter-cyclical fashion. Thus, in 1949, their peak in the middle of the year coincided closely in timing with the lows of output and orders. It was not until after the revival of general demand, accompanied by an upturn in output and orders, that manufacturers as a group were able to make headway in cutting these stocks. Just as in the declining phase of the business cycle hand-to-mouth buying tends to throw the burden of carrying stocks back on the manufacturer, so in the advancing phase more confident buying tends to fill up depleted pipelines and distribute the stocks more broadly throughout the business community.

In short, despite an apparent "stickiness" in inventories, actually the process of adjusting production to consumption and the working down of stocks has been going ahead in much the normal way, until inventories in the warm air field seem to have reached their normal level. This would indicate that a closer watch on the quantities of supplies carried in a dealer's stock should be maintained in order to reduce delays in filling customers' orders.

conversion burners, latest advances in heating, recent developments in types of gas fired conversion burner equipment for existing central heating furnaces, technical information on the installation and servicing of conversion burners and examples of successful sales promotion and advertising.

Announcing the new \*

# CENTURY GAS HORIZONTAL

bigger capacity in a *smaller, more compact* unit



with quicker, easier installation engineered-in,  
with service problems engineered-out.

**CENTURY** always gives you an outstanding product — with worthwhile engineering features that help you get more jobs. The new Century Gas Horizontal is no exception. It is smaller, more compact and very competitively priced. With all this it meets the high standards that have made Century the quality name in the heating industry for over 30 years.

**Compact** — Permits installation in homes with severe space limitations — in attics, utility rooms, basements and crawl-spaces.

**Rugged Heat Exchanger** — Heavy gauge. Extend-

ed surfaces at hottest portions provide additional heating surface to conduct heat directly from burner area . . . gives more uniform temperatures throughout heating sections . . . increases life of the unit.

**Horizontal Vent** — reduces clearance required . . . gets you jobs where other units won't fit.

**Trouble-Free Burner** — Cast iron, slotted ports. Gives complete combustion.

**Factory Assembled** — Saves installation time.

**Sturdy Casing** — Finished in green hammer effect baked enamel.

Available in three sizes:  
All models A.G.A. approved

100,000 BTU input  
80,000 BTU input  
65,000 BTU input

**CENTURY**  
ENGINEERING CORPORATION  
Cedar Rapids, Iowa

Manufacturers of a complete line of automatic  
gas and oil heating equipment for over 30 years



CENTURY ENGINEERING CORPORATION  
Cedar Rapids, Iowa

AA

Gentlemen: Send me specification sheet and complete information on your new gas horizontal models.

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_



### Thermo-Base REGULAR

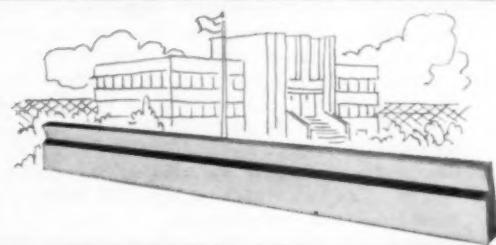
Only Thermo-Base assures better results by completely blanketing outside wall and window surfaces . . . distributing warm and cool air evenly throughout its entire length. This gentle diffusion of air is the only way to take the forced air "feel" out of the forced air system. The simple styling of Thermo-Base lends a touch of good design to any interior. Full length drapes do not interfere with its efficient operation.

Only a few minutes are required to install each 8, 5 or 3 foot unit in new or old construction. No roughing in is necessary. Units may be combined for continuous coverage.

Thermo-Base costs a dollar a foot or less (in zone 1) for the same high quality and proven performance that has made it America's best warm air baseboard buy!

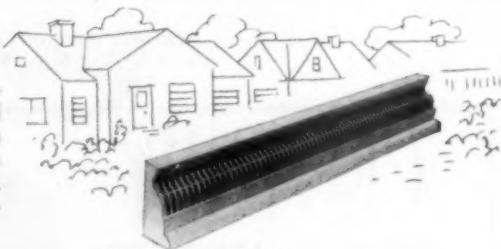
### Thermo-Base SUPER

has all the advantages of Regular Thermo-Base but is specifically designed to handle the greater volume of air required for large areas. It is ideal for use in schools, churches, offices, stores, factories and public buildings. Fronts are readily removable should cleaning ever become necessary. It's ideal for cooling, too!



### Thermo-30 America's lowest-priced baseboard diffuser!

The addition of Thermo-30" Diffuser to the Thermo-Base line will enable you to get all of your baseboard requirements from **ONE SOURCE**. This new 30 inch high-capacity baseboard unit can be used either as a warm or cool air diffuser or as a return air register. Its low \$2.00 each price (in zone 1) will sell fast in today's competitive market!



### SEND TODAY!

We'll show you how this complete line will simplify ordering, delivery and inventory . . . and how it will enable you to make extra profit from every baseboard sale!

Gerwin Industries, Inc., Michigan City, Indiana

# Luxaire Announces NEW... Streamlined Gas Fired UNIT HEATERS in



## 4 POPULAR SIZES!

*Luxaire* Unit Heaters  
with the **NEW LOOK** are  
**DISTINCTIVE IN APPEARANCE!**  
**DISTINCTIVE IN DESIGN!**

The Price is **LOW**  
The Quality is **HIGH**

The new, streamlined cabinet with baked enamel finish makes this heater as modern and distinctive in appearance as it is superior and distinctive in design and construction.

The ruggedly constructed, all steel heating element is electrically welded into a one-piece, leak-proof unit. Pipe hangers for suspending the unit are securely welded to the heating element.

Ribbon type gas burners are noiseless in operation, proof against "flash-back" and are not affected

by high temperatures. A burner support insures correct position of the burners at all times. Burners are easily removed for cleaning or inspection.

Propeller type fan is rubber mounted for quiet operation.

Unit heaters are completely assembled and wired at the factory ready for connection to gas and electric lines.

Luxaire UNIT HEATERS... MULTI-PURPOSE, DEPENDABLE, ECONOMICAL.

*See your Luxaire jobber without delay... get the complete information... get the **LOW** competitive PRICES on the **BIGGEST VALUE** ever offered in Gas Fired Unit Heaters.*

THE C. A. OLSEN MANUFACTURING COMPANY . . ELYRIA, OHIO  
*Luxaire*  
HEATING & AIR CONDITIONING UNITS



**"UNI-FLO"  
ENGINEERED**

# Air Distribution

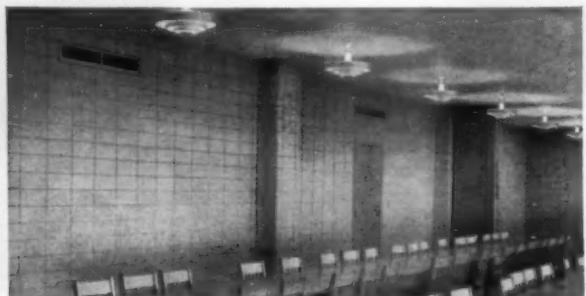
**... provides comfort for  
mental patients at huge  
Indiana institution ...**

Nearing completion at Westville, Indiana, is one of the world's largest institutions for the mentally ill. Since 1949 most of the thirty-four large buildings, plus staff residences, have been constructed at a total cost of nearly \$25,000,000. The institution contains a small city within itself with provision for housing, feeding, working, and recreational facilities for 3,250 patients and 450 employed personnel. Air distribution in most of the project has been engineered with Uni-Flo equipment to assure comfort conditions for the patients and staff members. Over 2,500 pieces of Uni-Flo equipment have been specified or installed in various buildings.

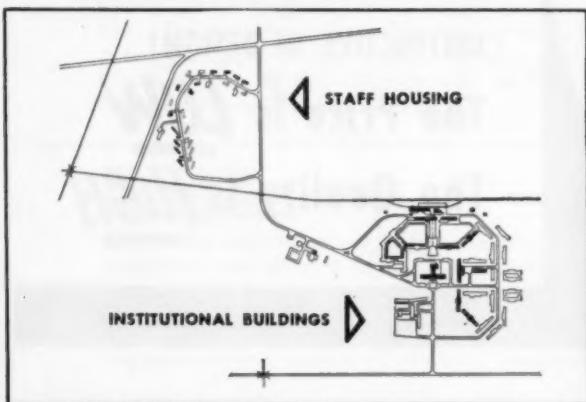
Architects, Engineers, Interior Designers: Boyd E. Phelps, Inc., Michigan City. General Contractors: Tonn & Blank, Michigan City; E. H. Marhoefer, Jr. Co., Permanent Construction Company, and Gordon & Company, Chicago. Ventilating Contractors: Troeger Sheet Metal and Zack Incorporated, South Bend; Industrial Sheet Metal, Hammond; Reliable Sheet Metal, Chicago.



**Disturbed Unit** houses violently insane patients. Uni-Flo Sidewall Diffusers in soffit distribute air quietly and uniformly. Each Diffuser is furnished with tamperproof screws.



**Aged and Infirm Unit** has dining area handling eighty patients at one time. Facilities are available for serving eight hundred patients in various units simultaneously. Uni-Flo Sidewall Diffusers are installed high on the walls.



**Huge size** of project is indicated by sketch. Included are dormitories, a hospital, laundry, kitchens, auditorium, greenhouses, occupational and recreational units, cold storage, warehouses, power and sewage plants, plus a separate personnel building and individual staff residences.



**Spacious Auditorium** has every modern facility for musical therapy treatments, plus entertainment of patients. Venturi-Flo Ceiling Diffusers (individually adjustable) provide a healthful, comfortable, draft-free atmosphere without distracting air noise.

## BLAZING THE TRAIL TO BETTER AIR DISTRIBUTION

**First to publish  
reliable data ...**

Performance data on air distribution equipment was meager and incomplete just twenty years ago. Pioneer work on this sub-

ject in the Barber-Colman laboratories was the basis for comprehensive engineering data, now time-proved and



widely used to determine, in the layout stage, the exact requirements for any desired conditions.

Research, development, and testing facilities are fundamental requirements and the responsibility of manufacturers to assure progress in the field of air distribution. Complete information about Barber-Colman's reliable selection data is available from our nearby Field Office (consult phone directory) or by writing us.

**BARBER-COLMAN COMPANY, Dept. J, 1106 Rock St., ROCKFORD, ILL., U.S.A.**



*Arnold Kruckman's  
Washington Letter*

## FHA Loan Hearings Turn Up Abuses — May Mean Revamp of Agency

THE RECENT HEARINGS on the operations of the Federal Housing Administration have led those responsible for the FHA to work quietly but actively on a program of decentralization.

Those who do business with FHA and its allied agencies will be wise to become well acquainted with those who conduct its affairs in their areas. They will find that most of the real business responsibility will be centered in the localities by national headquarters in Washington. According to many commentators here, there is no doubt that this policy has the approval of the President and others who form the policy of the Republican Party.

The Attorney General recently announced that 74 criminal indictments, involving 136 individuals, have been obtained in 1953 and 1954 in FHA cases. Sixty-seven cases have resulted in convictions.

### False Documents in Majority of Cases

The Department of Justice states that the majority of cases involves falsified loan documents in the FHA Title I home improvement loans program. Other cases involve violation of banking laws by bankers as well as by customers, corruption of government officials, and mail fraud. There are under way 39 foreclosures on defaulted housing projects involving \$32,089,476 in FHA-insured loans.

The FBI has found that thousands of home owners have been taken in by confidence men, principally during the peak years of the program — 1946 to 1952. Of this number, there were 608 cases that could not be foreclosed on the basis of criminal intent, because loose regulations permitted and even encouraged some of the fraudulent practices. The cases included improvements on non-existent houses; loans for improvements never made; loans used to pay for new autos, alimony, to repay gambling debts and pay cash rebates to the home owners.

### Five Basic Abuses in Title I Cases

In Title I cases there are five basic documents in which falsification has been found:

- *Construction contracts:* The quantity and type as well as the contract amount falsified.
- *Credit applications:* Name of borrower or address fictitious, or name inserted without knowledge of borrower; false statistics on borrower and his credit rating, or debts; falsification concerning property including fact that property was unfinished; falsification of use for loan money.
- *The note:* Forgery of borrower's signature.
- *Completion of certificate:* Forgery of home owner's signature, false statements by dealer that signatures were genuine, that work was entire consideration of loan, that borrower had not been promised rebate or bonus and that certificate was made after work was done.

► *Down payment certificate:* A 10 per cent down payment was required formerly and the dealer often induced the borrower by making the down payment himself while certifying that the borrower made it.

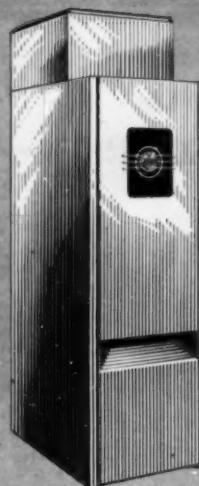
When the home owner has been victimized into making the false documents, under inducements of the salesman, the Department of Justice, whenever possible, has attempted to protect the owner and prosecute only the salesmen and dealers as the actual perpetrators of the fraud.

### How Home Owners Were Duped

Common practices of unscrupulous salesmen include the "model home" approach, where the victim is assured his home will serve as an advertising model and that he will receive special rates, bonuses from future sales, etc.; talking the victim into signing an extra set of loan papers which the salesman then uses to make a fraudulent loan for non-existent improvements; or inducing the home

(Please turn to page 32)

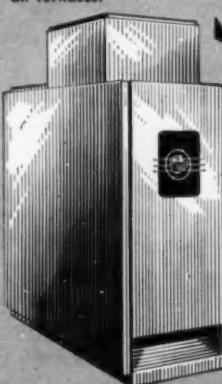
There's money in the air...  
when you sell CHRYSLER AIRTEMP!



Hi-Bay Space Saver.

New, inverted "V"-type cooling coil looks like this inside.

Lo-Bay Space Saver.  
Cooling coil may be  
used with other forced  
air furnaces.



## It's New! THE "SPACE SAVER"

Airtemp Engineers have developed a Year  
'Round Air Conditioner requiring only a few  
inches of floor space!

Need magic to install year 'round air conditioning in tight spaces? Only the Space Saver gives you all of these features:

- 1 Available with waterless or water cooled condensing unit.
- 2 Heating can be installed now—cooling later with absolutely no alterations.
- 3 Automatically cools or heats—no dampers to change.
- 4 Easily installed anywhere in the house—as little as 22" x 30" floor space required.
- 5 Counterflow and conventional models available.

Here is another Chrysler Airtemp "First" . . . an exclusive new feature that will help you sell heating *plus* cooling to realize *twice the profit* on more jobs than ever before. For information on other selling advantages you get only with the Chrysler Airtemp Heating Franchise, write to Airtemp Division, Chrysler Corporation, Dayton 1, Ohio.

CHRYSLER  
**AIRTEMP**  
DIVISION OF CHRYSLER

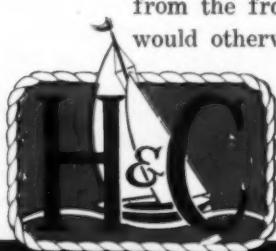
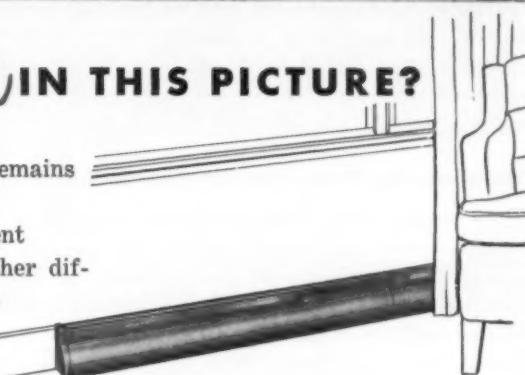
Air Conditioning's  
other name...  
**Chrysler Airtemp**

HEATING • AIR CONDITIONING FOR HOMES, BUSINESS AND INDUSTRY



## WHERE IS THE *Diffuser* IN THIS PICTURE?

It's discernible, of course, but the fact remains that when an H&C No. 44 Continuous type Diffusaire is decorated like the adjacent wall it is far less conspicuous than any other diffuser of this type . . . so unobtrusive as to usually require a second look to be detected. This is a quality that every homeowner appreciates, that every manufacturer has sought to achieve, and it is accomplished in the H&C No. 44 Series by totally eliminating from the front of the diffuser all vertical or horizontal openings which would otherwise break its streamlined contours.



Exceedingly low in resistance, it provides an ideal air pattern for both clean heating and cooling. Easily assembled or disassembled without the use of tools for quick installation or cleaning, this DIFFUSAIRE has proved an outstanding favorite with installers and homeowners alike. See it at your H&C Jobbers.

CONTINUOUS



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FLOOR



OUT-OF-WALL



HIGH CAPACITY



H & C PROVIDES ALL TYPES OF PERIMETER DIFFUSERS

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HOLLAND, MICHIGAN

PRODUCT OF THE WORLD'S LARGEST and MOST PROGRESSIVE PRODUCERS OF REGISTERS and GRILLES



# Washington Letter

## FHA Abuse Cases —

(Continued from page 29)

owner to make a loan in a fictitious amount in excess of the costs involved. Some notorious confidence men with long criminal records operated in this field.

Many cases under investigation or in prosecution involve former public officials. It is interesting to note that bank officials have been prosecuted for accepting commissions, gifts or bribes for processing loans; for misappropriating funds; and for breaking other banking statutes. Counterfeiting notes and bonds, uttering false advertisements, conspiring with others to commit a fraud — all these crimes have been attributed to public officials as well as to bankers and confidence men. The documents prepared by the FBI, the Department of Justice, the Housing and Home Finance Agency and the Internal Revenue Service make it appear as though there were, for a time, a regular saturnalia of law-breaking by an astounding variety of people with whom one does not usually connect lawlessness.

## Manufacturing Data from Census Bureau

The Bureau of the Census issues two studies of extraordinary interest and value to industry. The one is known as the *Census of Manufactures*, which will be taken early next year covering operations during 1954. The results will be available in the fall of 1955. The other is the *Annual Survey of Manufactures* which was issued on August 31.

The *Annual Survey of Manufactures*, in addition to estimates just recently issued for 1953, supplies comparable data for 1952, 1951 and 1947. The new survey utilizes key measures of manufacturing activities for industry groups, important individual industries and for geographic divisions and states. These, and other statistics relating to manufacturing, are collected in much greater detail in the *Census of Manufactures* to be issued later. It is intended that the survey provide up-to-date basic statistics, during the intercensal period, to the business community, government and the public.

## Provides Spot Check on Business

At the present time, this information is intended to serve as one of the spot checks on business conditions and to furnish a background against which federal agencies can measure the impact of the mobilization effort on all important segments of manufacturing.

The first of this series of annual surveys covered the year 1949; reports have been issued for each year since.

The survey estimates are based on operating establishments' reports received in a sample which comprises about 50,000 establishments out of a total of 280,000. This is somewhat larger than previous annual survey samples.

The design of the new and old samples, however, follows the same general plan. Included in the 1953 sample, as in the past, are all large plants accounting for approximately two-thirds of the total manufacturing employment in the United States, together with decreasing proportions of the much more numerous medium and small-sized establishments.

The tables in these condensed reports will appear, together with the explanatory texts and technical appendices, in the final volume scheduled to be printed later this year. In addition, the volume will include a section summarizing production and quantity data and value of shipments for approximately 2300 selected commodities. These commodity statistics have been previously released in the *Facts for Industry* series of reports.

## Give '53 Values for Furnaces, Steel Products

Warm air furnaces shipped in 1953 are valued at \$197,275,000; in 1952, \$187,987,000; in 1951, \$180,848,000; and in 1947, \$148,597,000. Water heaters, except electric, shipped in 1953 total \$130,790,000; 1952, \$107,968,000; 1951, \$115,636,000; and 1947, \$112,113,000.

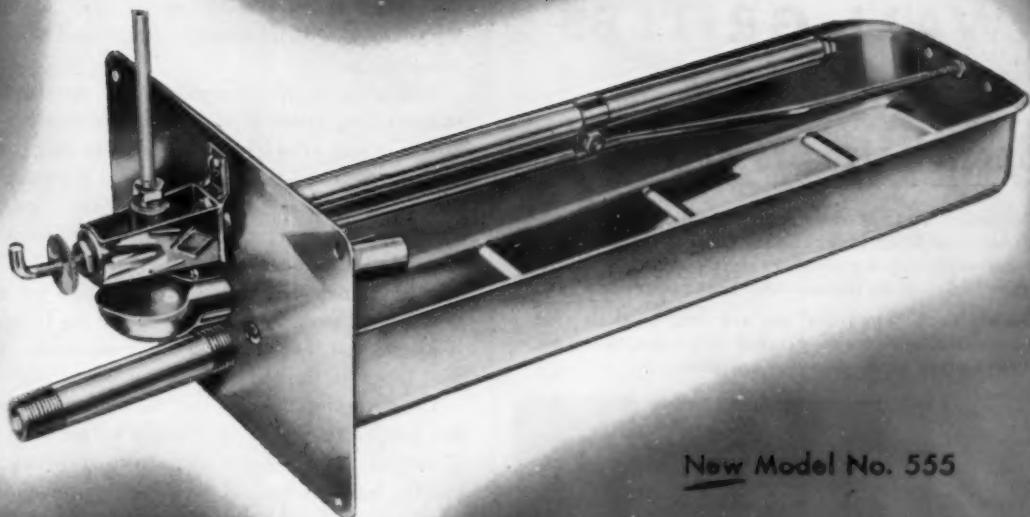
The value of hot rolled sheet and strip shipped in 1953 is given as \$1,735,454,000; in 1952, \$1,315,919,000; in 1951, \$1,734,488,000; and in 1947, \$973,780,000. Cold-rolled sheet and strip products shipped in 1953 total \$1,750,506,000; in 1952, \$1,238,771,000; in 1951, \$1,449,471,000; and in 1947, \$725,211,000.

Total value of structural and ornamental products shipped in 1953 is given as \$1,650,695,000; in 1952, \$1,475,320,000; 1951, \$1,486,178,000; and 1947, \$808,922,000. Sheet metal products in 1953 are valued at \$800,737,000; 1952, \$675,728,000; 1951, \$657,707,000; 1947, \$417,024,000. Industrial fans and blowers, including parts, in 1953, total \$215,552,000; 1952, \$197,573,000; 1951, \$181,211,000; 1947, \$129,913,000. Value of mechanical stokers in 1953 is \$21,525,000; 1952, \$21,040,000; 1951, \$20,303,000; and 1947, \$23,215,000.

Copies of the 1953 *Annual Survey of Manufactures* may be obtained from the Bureau of Census, Washington 25, D. C.

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FOR FASTEST INSTALLATION



New Model No. 555

# Vaporite

**AUTOMATIC DRIP HUMIDIFIER**

Saves you money on every job. Cuts *time* and *labor*. No parts to assemble — no pan leveling or trick mounting.

Cut single plenum opening — slip *completely assembled* Vaporite through hole. Fasten 5 screws. Attach to water pipe and it's ready to operate. Note: Also available, Model No. 555-C with  $\frac{3}{8}$ " O.D. x 12" copper pipe overflow.

Most important of all — it's an *automatic humidifier* with a DRIP FEED that gives you true CONTROLLED

HUMIDITY . . . Thermostat automatically measures the amount of water to go to hot pan.

**GET NEW  
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LITERATURE**

• Here is the most modern, most efficient way to put moist vapors in the home. Nationally advertised in Saturday Evening Post, Better Homes & Gardens, Small Homes Guide.

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### Special Sizes to Your Order

We welcome your requirements for special, large size grilles. With Independent famous "Fabrikated" construction, such grilles are rigid—strong—exceedingly resistant to impact—the best money can buy.

On all such "specials" we are prepared to give immediate service and prompt shipment, since we always stock grille parts for any size.

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us your  
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This special "Fabrikated" wall grille is 4' high and 2' 10" wide. We make 'em any size.

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## WASHINGTON LETTER —

### Restraint of Trade in Rain Carrying Goods?

A recent Federal Trade Commission complaint charges that 20 manufacturing firms maintain a "conspiracy, combination, agreement, understanding and planned course of action to fix and maintain uniform delivered prices, discounts, terms and conditions of sale," for rain carrying goods in order to restrict, restrain and eliminate price competition.

According to the complaint, the manufacturers sell rain carrying goods to each other and to other manufacturers, as well as to jobbers and dealers (hardware stores, roofers, etc.), at different discounts for each of these classes of customers. It says that footage items are sold on the zone delivery price basis, with different delivered prices between zones, while accessories "are sold at uniform delivered prices which are identical for all the respondents at any given time throughout the United States." It asserts that these manufacturers constitute "the dominant factor in the industry."

The government alleges that the 20 manufacturers have met for the purpose of revising standard list prices and discounts; have agreed upon revised prices and discounts; have exchanged their price lists and discount schedules; and have corresponded with each other and established uniform classifications of customers, prices, discounts, terms and conditions of sales. It charges that the practice suppresses competition.

It should be remembered that the charges made by FTC have not been proven and no action will be taken until public hearings have been completed.

### SBA Makes More Loans

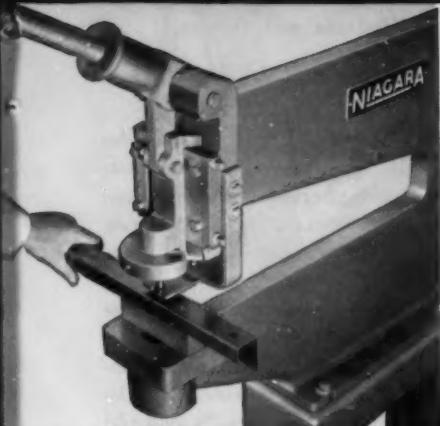
The Small Business Administration recently announced a number of direct and bank-participating loans. Among them was a loan of \$25,000 to William Hewitt, Marcus A. and Merritt H. DeCamp, Neligh, Neb., heating contractors; \$20,000 to Maurice J. Goodman and Lewis J. Sobel, Woodbury, N. J., sheet metal products and warm air heating equipment manufacturer.

### To Cut Commercial Services of Federal Agencies

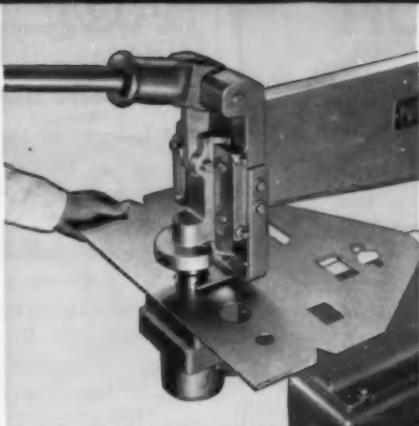
The Bureau of the Budget has been assigned the task of getting the federal government out of business where it competes with private citizens. Budget Director Roland R. Hughes is working on what is now a directive but is expected to become a Presidential order. It requires all federal agencies to submit an inventory of their commercial type services. It would also require the agencies to justify these operations or yield them to private industry.

The proposal, still in early stages of formulation, would: 1) define commercial type activities; 2) set standards for rejection or liquidation; and 3) spell out basic government policy relating to federal competition with

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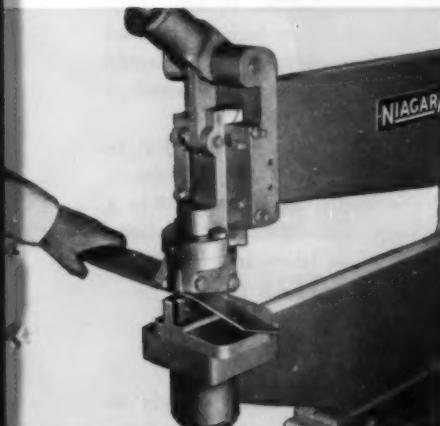
Punching Channel



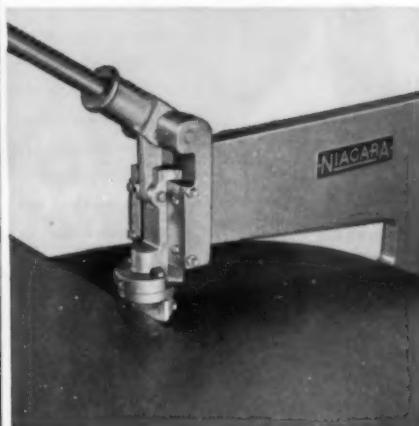
Punching Sheet



Cutting Inside Shapes



Shearing 3/16" Plate



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Notching Angle Iron



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America's Most Complete Line of Presses, Shears, Machines and Tools for  
Plate and Sheet Metal Work

## It's the NEW Niagara No. 5-24 Lever Punch & Shear

Yes, this versatile new machine can do all these things and more. With a 5-ton capacity and a 24-inch throat, it is ideal for diversified operations in industrial sheet metal shops, maintenance departments, experimental and model shops.

Equipped (optionally) as a punch or shear or both, it is readily converted from one to the other. A large selection of punches and dies is available for handling a tremendous variety of work.

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Snap-lock pipe also available in easily-handled 2' length. 3-12 inches, 28-30 gauge.

### CHAMPION 90° 4-pc. Adjustable Elbows

These extra-strong, easy-to-adjust elbows fit into place quickly and snugly. Like all Champion units they always fit perfectly.



### ORDER CHAMPION TODAY!

The CHAMPION line of pipe, fittings and ductwork is complete, includes perimeter fittings—a well-known CHAMPION specialty.



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## WASHINGTON LETTER —

private enterprise. Deputy Budget Director Brundage told the House government operations committee about the plan during hearings on the anti-federal competition bills by Representatives Hoffman and Osmers.

### BDSA Board Hears Complaints

A federal board to which industry may take its troubles has already been set up, Mr. Brundage told the committee, in the Business and Defense Services Administration of the Commerce Department. It examines specific complaints of federal competition, and where the facts warrant it, discusses with the agency concerned ways and means of eliminating or reducing such competition. For this reason, Mr. Brundage said, the Bureau of the Budget opposes establishment of a new anti-government competition board as recommended in Representative Osmers' bill (HR 8832). This, the bureau notes, "would add a new independent agency to the already excessive number of agencies reporting directly to the President." It would overlap and duplicate work now being performed elsewhere in BDSA. The Hoffman bill, HR 9834, would impose a heavy work load on the bureau, Mr. Brundage told the committee.

Congressman Osmers is very earnest in his effort to get a bill adopted to take government out of business. He stresses that when this is accomplished there will be a reduction of the national debt, lower taxes for everybody and the restoration of "real free labor and free enterprise in America."

### Says Government "Doing a Huge Business"

In an interesting address that he made recently in Congress, he stressed that the government today is doing a huge business in the sale of land, in the sale of grains, in operating a warehouse, in operating ships and that it has the largest fleet of trucks in the United States. He gave some outline of the activities of the Defense Services in roasting and selling 100 million lb of coffee a year and making a tremendous quantity of rope and paint. He stated that the government makes half a million pairs of spectacles yearly in a factory in St. Louis. He also listed false teeth, wooden legs, huge quantities of rubber stamps and a vast tonnage of ice cream.

He listed the extraordinary number of hotels operated by the government not only on the American continent but elsewhere, and showed that it is operating tug boats on both coasts, power plants, laundries, typewriter repair shops, banks, other lending agencies, and is carrying on a large building business in providing housing in various parts of the country. He discussed, fleetingly, the government sheet metal business.

In Representative Osmers' opinion, much commerce conducted by government can be eliminated by the executive branch.



Original price is a factor, of course. That's why Sequoia forced air gas furnaces are nationally available at competitive prices—reasonable, consistent prices!

But performance quality tells its story just as plainly on any heating dealer's profit and loss statement! In the cost of service call-backs...of replacing dissatisfied builder clients...and of appeasing trouble-besieged users. Or lack of such costs.

**SEQUOIA** backs up its claims of quality—every furnace shipped contains the homeowner's printed 10-year guarantee. And that same guaranteed quality now is reflected on the financial statements of hundreds of dealers, coast to coast.

**IT COULD BE ON YOUR'S.**

You are invited to join this profitable dealer sales organization. For full details contact the nearest office today.

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KANSAS CITY, MO., H. V. Patterson, 4112 Pennsylvania  
OKLAHOMA CITY, Guy W. Gentry, P. O. Box 7131  
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isn't like  
selling heating  
...OR IS IT?**

Time was when air conditioning engineers tried to scare the wits out of us with terms like adiabatic, latent and sensible heat, and so on.

But not any more.

Heating men are finding now that there's no great mystery to cooling. Installing it is no problem, and modern cooling units are becoming about as foolproof as your refrigerator.

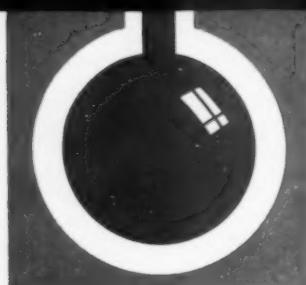
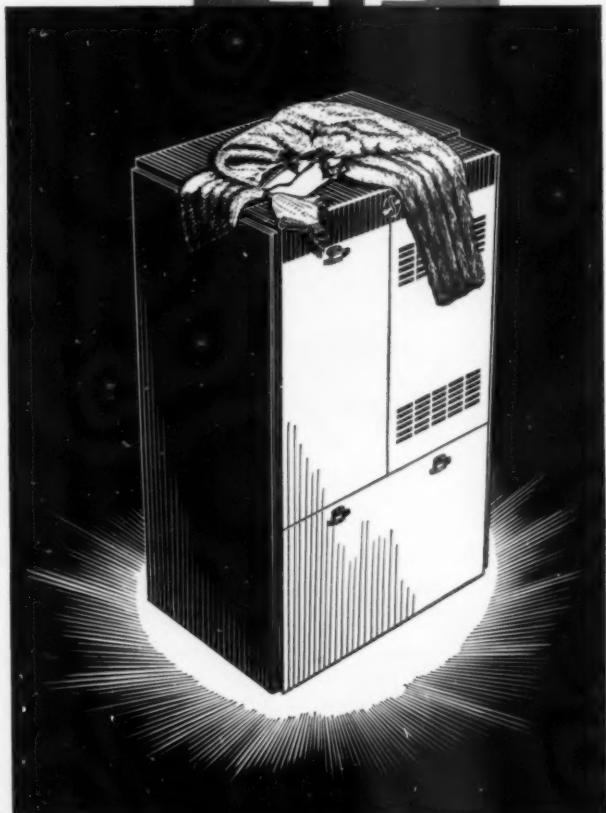
Permaglas air conditioning has made the whole matter about as simple as it can be. Cooling unit slides in like a drawer. No dampers, so no damper control problem. Hermetic compressor. Ceramic-coated heat exchanger ends problems from condensation. And your customers will know A. O. Smith, and the famous glass-lined Permaglas water heater.

Permaglas is going places—are you aboard?

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Permaglas glass-lined water heaters mean freedom from rust and corrosion to over 2,000,000 families. A. O. Smith-Burkay Commercial Water Heaters are the world's most popular in their field.



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GREATEST ADVANCE IN AIR CLEANING ECONOMY

LABORATORY TESTS PROVE  
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These precision stamped filter openings make possible EVANS PRECISION AIR CLEANING.

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EVANS HIGH CAPACITY PRECISION AIR FILTERS have set a new standard in air cleaning. Actual installation performance is so superior it has amazed engineers on every application. Here are some of the secrets of this performance.

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An exclusive Evans feature that creates higher turbulence . . . greatest air travel . . . air is forced to pass over a tortuous path of 1.24 miles of precision stamped talon like edges . . . up to 3.5 times filter depth.
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Provide low resistance storage capacity for fibers contained in normal airborne dust.
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Adds profits — sales — gives new greater customer satisfaction.

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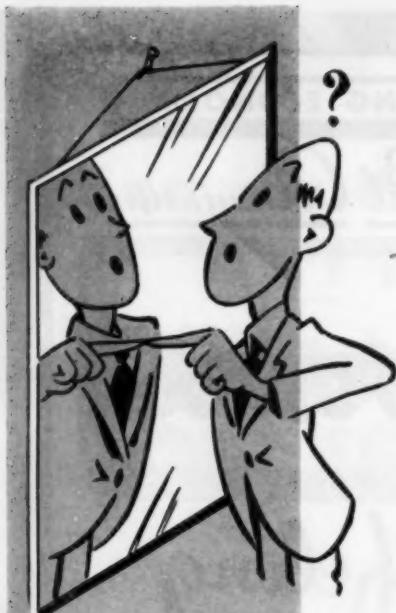
GENTLEMEN: Please send me:  Descriptive Literature  
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As a Waterbury Dealer or Distributor, you can expect a great deal. You can bank on a complete line of quality products, with a unit for every size home and every type of fuel. You can be sure you have a nationally-advertised line, with consumer acceptance. You can benefit from local advertising, display and merchandising material, including the P.C.C. program designed to bring receptive prospects to you. You can sell more of your prospects with the aid of the exclusive Waterbury Payment Plan. And the clearly stated Waterbury policy means a sound, profitable relationship between dealer, distributor and factory.

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OVER 47 YEARS OF WARM AIR HEATING

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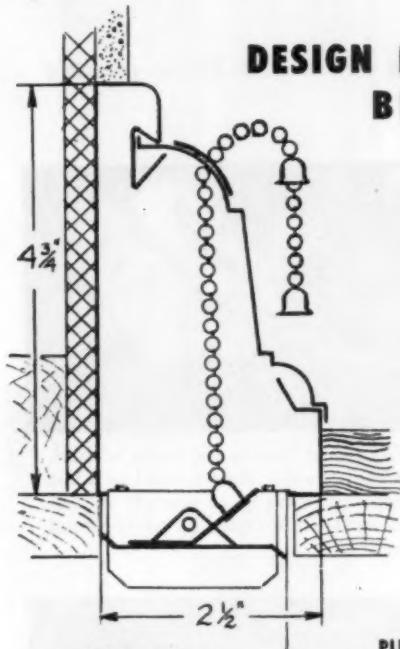
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Air Control

NO. 180 BASEBOARD  
PERIMETER DIFFUSER



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- 1 **KNOCK OUT BOTTOM DESIGN SAVES INSTALLATION TIME.** Lower installation costs are made possible by the easily removed knock-out sections which make it a simple matter to fit the diffuser over the duct outlet. Connection may be off center if desired and sized for either 12" or 14" duct. Installation may be done either before or after plastering or laying of finish floor. It's quick, it's positive—field proven!
- 2 **LARGE FREE AREA DESIGN FOR MAXIMUM EFFICIENCY.** In each 4 foot section there is a free area of more than 29 square inches. The balanced, low-resistance design of these openings produces an air pattern that stays close to the wall with a spread of up to 5 times the length of the unit—with ample vertical throw to completely blanket the wall without drafts. To form a continuous baseboard, combinations of 2 and 4 foot lengths may be easily joined by means of connector kits.
- 3 **NEWLY DESIGNED CORNER FILLERS SIMPLIFY CONTINUOUS INSTALLATIONS.** Now you can install continuous, flowing baseboards around corners without unsightly gaps and breaks! Formed to the exact profile of the No. 180 diffuser and finished in matching Beige prime coat—available for both inside and outside corners. They are made of fine quality hardwood dowled and glued for extra strength; quickly set in place with finishing nails.
- 4 **OPTIONAL DAMPER DESIGN REDUCES OVERALL COST.** You save  $\frac{1}{2}$  or more in the cost of dampers by installing them only where necessary. Air Control supplies the dampers as separate units, in either 12" or 14" size, and only as many as the system requires need be installed. Their convenient chain control makes it easy to balance the system. The damper is spring-loaded to stay open—can't accidentally fall shut and cause system to overheat.

PLUS A COMPLETE AIR CONTROL LINE OF REGISTERS, GRILLES AND DIFFUSERS



**NO. 15 SIDEWALL  
DIFFUSERS**

Unique Rared face design blankets wall and diffuses air without drafts. Curved damper valve cannot rattle or creep; easy to balance. Unit may also be used for baseboard installation with type "E" frame adapter.



**NO. 42 FLOOR  
DIFFUSER**

Four models with curved adjustable vanes to reduce resistance and give complete control of the air stream. Seamless, one-piece face. Streamline valve for even air distribution with set-screw adjustment for easy balancing.



**CEILING  
DIFFUSERS**

Step-down or flush type models for smooth good looks and utmost efficiency. Air flow rings present minimum resistance, allow rapid air diffusion. Dampers in either butterfly or single-valve type and installation rings are also available.



**NO. 10 SERIES  
REGISTERS and GRILLES**

For sidewall or baseboard. Superb performance—beauty that sells. Complete horizontal and vertical control of the air stream. 23 sizes, from 8" x 4" to 30" x 8" in registers and matching grilles.



**NO. 40 SERIES FLOOR  
REGISTERS and RETURN  
AIR FACES**

Patented Rigid-Lock construction is strong and solid, makes a firm walking surface for home or commercial installations. Foot operated dial controls air flow. Oak or Metallocent.

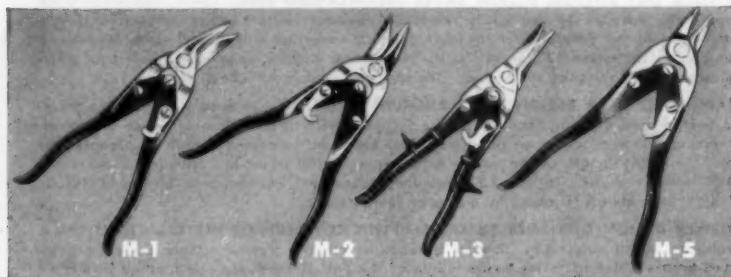
SEE YOUR LOCAL JOBBER OR WRITE FOR THE COMPLETE AIR CONTROL CATALOG AND PRICE LIST—  
CATALOG NO. 54-AC. IMPROVED PERFORMANCE  
AND GREATER ECONOMY ON EVERY JOB WHEN  
YOU SPECIFY AIR CONTROL.



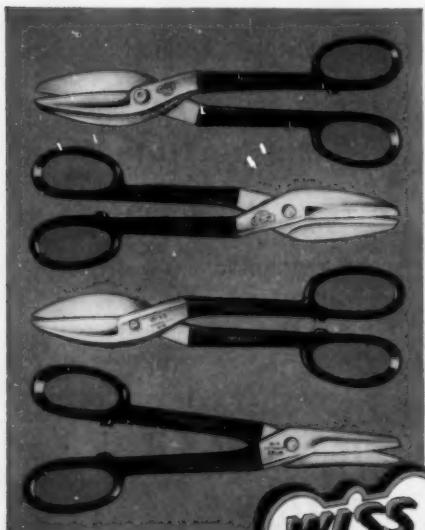
**Air Control**  
PRODUCTS, INC.  
Dept. A COOPERSVILLE, MICH.

# "I'VE USED WISS SNIPS FOR 44 YEARS BECAUSE THEY MAKE TOUGH JOBS EASY"

*Philip Convisar, Juniper Elbow Co., Inc., Middle Village, N. Y., gives one sound reason why he prefers Wiss metal cutting snips. There are several reasons why they are the choice of professional workers everywhere—why they sell better, with fewer returns. Wiss snips are produced largely by the hand-work of skilled workers. Each pair is rigidly tested and guaranteed perfect. Bolts are set precisely to reduce wear and to increase cutting power with least effort.*



**WISS METAL MASTER SNIPS:** Compound action design delivers amazing cutting power. These 10" snips cut with about one-half the effort required for standard 12½" snips. One edge serrated to prevent slipping. M-1 (cuts left) and M-2 (cuts right) are designed to cut the most intricate scrolls and circles. M-3 is for shallow arcs and straight cutting. M-5 Bulldog Heavy Duty snips are tops for notching, nibbling and cutting shallow arcs in sheet metal as heavy as 16 gauge.



#### WISS INLAID SNIPS

High carbon crucible steel welded to a hot drop-forged frame provides that extra service demanded by professional users everywhere. Six Straight Cutting sizes from 11½" to 17", including Bulldog Snips for notching. Three Combination\* Cutting sizes, 12½", 13½" and 14½".

#### WISS SOLID STEEL SNIPS

For those whose requirements are less specialized than the professional user. Hot drop-forged of fine carbon steel, they meet or exceed government specifications. Four straight cutting sizes, 8" to 12½". Four Combination\* Cutting sizes, 7", 10", 13" and 16" Bulldog Snips for notching.

\*Made with straight blades, but ground and shaped so they readily cut curves and irregular shapes as well as straight.

**J. WISS & SONS CO.,**



**NEWARK 7, NEW JERSEY**

*Manufacturers of Shears, Scissors, Pinking Shears, Metal Cutting Snips and Garden Shears*



Wiss inlaid blades are made of high carbon crucible steel welded to a hot drop-forged frame to provide the extra service demanded by professional workers.



Wiss snips are hot drop-forged of the finest steels available.



Highly skilled craftsmen make final adjustments to assure that Wiss snips will cut perfectly for a long time.

# BERGER FURNACE

with perim-a-base

## GOES PROMOTIONAL



# BERGER

FURNACE CORPORATION

*a respected name in home heating  
for over 25 years*

BELLE VERNON, PENNSYLVANIA

*We'll help you LOCALLY  
with a POWERFUL AD CAMPAIGN*

Now more than ever, you'll want to be a Berger Furnace Dealer—because we're offering a *local* selling program that can't miss. Use our one-minute TV pitch—it has "hard-sell" to bring you "live" replacement heating inquiries. We'll cooperate on a newspaper campaign to bring in more "live" ones. Mail a colorful Berger flier to your prospect list, and then back it up with free point-of-sale counter cards and a four page brochure. And Berger goes one step further—we provide concise guide-books to help your salesmen sell complete furnace and Perim-a-Base installations for really healthy profits.

### BERGER FURNACES

Your customers will like everything about Berger warm air furnaces—the way they quietly supply clean, gentle warmth. Compactly manufactured of heavy gauge steel with a baked-on enamel finish, Berger furnaces look impressive . . . and they operate at low fuel cost because BERGER'S HEAT WRINGER principle (long flue passage with frequent restrictions) squeezes and uses every bit of heat. There's little maintenance needed on Berger furnaces—just sell 'em and forget 'em.

### PERIM-A-BASE THE BEST ANSWER FOR COMBINATION HEATING-COOLING INSTALLATIONS

You'll be selling the only system that delivers convected and radiant heat, together with full circulation of clean fresh air, *plus* humidification or dehumidification as needed. And Perim-a-Base is as unobtrusive as a baseboard. Backed by the Berger Furnace *local* advertising promotion, the Berger package—Warm Air Furnace and Perim-a-Base—must be a money-maker for you.

YES, I'm looking for local promotional help.

*Send me more information*  
 *Send your representative*

DEALER'S NAME \_\_\_\_\_

STREET NUMBER \_\_\_\_\_

CITY \_\_\_\_\_

STATE \_\_\_\_\_

# a genuine masonry chimney... packaged to go up in 1½ hours

**The Van-Packer Chimney gives you twice the safety and 34% greater draft than conventional brick!**

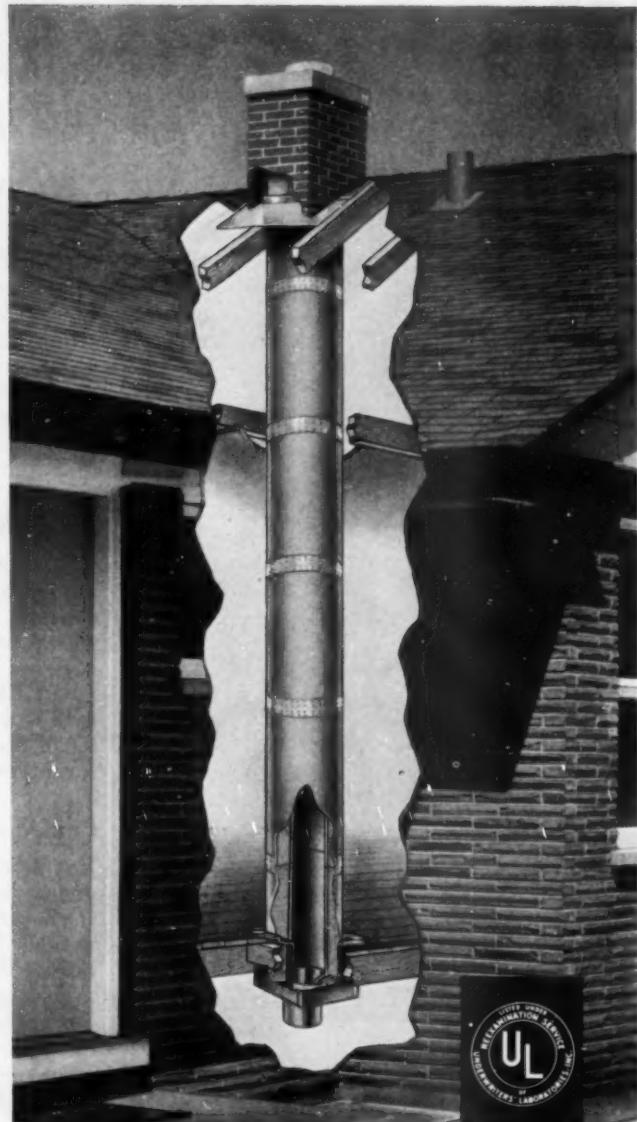
**Safety equal to 24" brick wall** — The Van-Packer Packaged Masonry Chimney is built with time proven, 100% safe fire clay tile liner — withstands 2100° F. Three inch insulating concrete wall is equivalent to a 24" solid brick chimney wall. Section joints are permanently sealed with acid-proof, leak-proof cement. UL listed for zero clearance.

**Approved for all fuels** — FHA accepted, UL listed, approved by major codes.

**Conventional brick appearance** — The Van-Packer "Brick-Panel" Chimney Housing has the "buyer acceptance" of a conventional brick chimney. Fireproof, weatherproof, molded cement asbestos panels will not dent, rust, or corrode. Has the permanence of stone. Brick red with natural color mortar lines, housing is deep embossed with brick texture. Embossing permits matching other brick colors, if desired, without covering mortar lines. Housing measures 16" wide by 24" deep.

**Saves time, material, space** — Completely packaged 2 foot masonry sections permit fast, easy construction — on average installation — by one man in 3 man hours or less. With two men, goes up in 1½ hours. No special skills needed. Easily installed even after house has been completed. Building delays eliminated. Can be floor or ceiling suspended directly over furnace, saving valuable floor space.

**Immediate delivery** — See your local classified telephone directory for listing of Van-Packer heating or building material jobber. If no Van-Packer distributor is listed, write Van-Packer Corp.



For detailed information and installation data send for Bulletin No. 11J-AF28

**Vp**  
**Van-Packer**

Van-Packer Corporation • Bettendorf, Iowa

**PACKAGED MASONRY CHIMNEY  
WITH "BRICK-PANEL" HOUSING**

Manufactured and distributed in Canada by C. A. McRobert and Son, Ltd., St. Laurent, Quebec



Perfection's  
3 point  
platform  
for dealers

® Pat. Pending

The best treat a furnace dealer can have is to turn sales opportunities into money in the bank when they knock on the door.

Perfection can help you turn *this* trick with:

1. **Regulaire®... the only real exclusive in the heating business.**
2. **"On-the-spot" sales assistance by experienced Perfection men.**
3. **Protection from cut-rate or factory competition in your territory.**

Companion air conditioning unit helps you sell a *complete* "comfort" package.

Write us. Perfection Stove Co., 7534-F Platt Ave., Cleveland 4, Ohio.



**From every angle . . .**

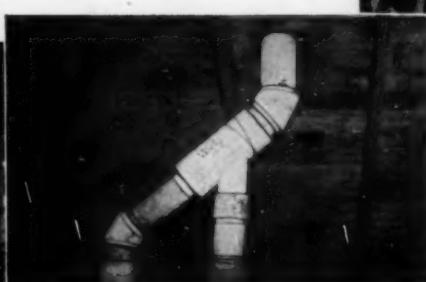
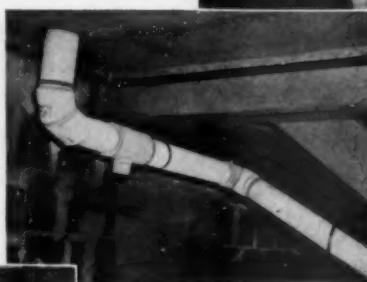
**Transite® makes  
quick work  
of gas-venting  
problems**



**Only the adaptable Transite Line of Gas Vent Pipe and Fittings offers you All these advantages:**

1. Continuously UL-listed since 1932 as an approved "Type B" vent for domestic gas appliances
2. Wide range of round and oval pipe, fittings and adaptors
3. Available in 5-and 10-foot lengths to simplify handling and speed up assembly
4. Pipe and fittings of strong, tough asbestos-cement—need not be "babied" during installation
5. Easy to carry and install
6. Uniform strength permits clamping anywhere along barrel without denting
7. Special fittings may be made to order to solve unusual problems

**For further information, write to Johns-Manville, Box 60, New York 16, N. Y. In Canada, 199 Bay Street, Toronto 1, Ontario.**



**Also Transite Type B-W Gas Vent.** Developed by Johns-Manville for the improved venting of recessed wall heaters, Transite Type B-W Gas Vent is an asbestos cement product, aluminum-jacketed and specially designed for simplified installation. UL-listed.



**Johns-Manville TRANSITE GAS VENT PIPE**

# MONCRIEF NOW OFFERS

## Snap Lock Round Pipe . . . Snap Lock Wall Stack . . . Snap Lock Duct in Long Lengths



### Round Pipe

5 Foot Lengths  
10 Joints per Carton

### TRADE PRICES

30 Ga.	26 Ga.
4"- \$ .63	
5"- .81	
6"- .95	\$1.05
7"- 1.13	1.26
8"- 1.26	1.40

### Wall Stack

5 Foot Lengths  
5 Joints per Carton

### TRADE PRICES

3 1/4 x 10"	-	\$2.04
3 1/4 x 12"	-	2.23

### Snap Lock Duct

#### 64" Lengths

Ideal for extended  
plenum installations



PACKED 10-8" SIDES PER CARTON . . . 10 TOPS OR BOTTOMS PER CARTON. ONE CARTON OF EACH MAKES 5 64" LENGTHS OF DUCT!

It's MONCRIEF for the BIGGEST — MOST COMPLETE LINE of SNAP LOCK WARM AIR PIPE . . . SNAP LOCK WALL STACK . . . SNAP LOCK DUCT . . . FITTING for ANY TYPE of Heating

### TRADE PRICES

Per Carton	Per Length of Complete Duct
10-8" Sides — \$8.25	12"x8" Duct — \$3.25
10-12" Tops or Bottoms — 7.98	14"x8" Duct — 3.52
10-14" — 9.35	16"x8" Duct — 3.80
10-16" — 10.73	18"x8" Duct — 4.02
10-18" — 12.10	20"x8" Duct — 4.35
10-20" — 13.48	

and Air Conditioning Installation. Write for the name of your MONCRIEF jobber. He carries a complete stock for immediate delivery.

THE HENRY FURNACE COMPANY • Medina, Ohio

HEATING AND AIR CONDITIONING UNITS

MONCRIEF

FURNACE PIPE AND FITTINGS

# Installing



# Duct Liner

## is as Simple as...

### A

Cut required length and apply to sheet metal with adhesive



### B

Form insulated duct section in brake



### C

Use regular fabricating method  
(no special procedure required)



VITRON Glass Textile Yarns • Rovings • Micro-Fibers

DURAMAT Vapor Barriers • BLUE FLAG Pipe Wrap

MICROLITE Thermal and Acoustical Insulation

VIBRAGLASS Mounting and Packaging Materials

COUSTIC-AIRE and THERMO-JET Aircraft Insulations



Precision cutting and fitting of separate pieces, as with rigid insulation, is just not necessary. Microlite glass fiber duct liner is soft, pliable, pleasant to handle (no itching!) and as simple as A B C to install.

And that's just half the story. Microlite duct liner is a wonderfully efficient acoustical and thermal insulation.

#### Look:

**Sound Absorption Value:**  $\frac{3}{8}$ " liner has a noise reduction coefficient of .60; 1" of .80.

**Thermal Qualities:** "k" value of .20 at 50°, .21 at 75°, .23 at 100°, .27 at 150°, .31 at 200°.

Featherlight too. One-inch liner with coating on one side weighs less than  $2\frac{1}{4}$  ounces per square foot. Excellent air erosion resistance also. Coated liner is recommended for velocities of 1500 feet per minute or over. For velocities up to 1500 feet per minute, uncoated will perform satisfactorily.

For a technical bulletin and sample, and name of your nearest distributor, write to Glass Fibers Inc., 1810 Madison Avenue, Toledo 2, Ohio.

## GLASS FIBERS INC.

Makers of glass fibers by the ELECTRONIC-EXTRUSION process  
... developed, patented and used exclusively by Glass Fibers Inc.

# WHAT THE ASSOCIATIONS ARE DOING



Receiving congratulations from Jack Demling (center) are Vince McGrath (left) and R. T. O'Grady



Getting an early start are (l. to r.) Earl Jennings, Jay Boslough and Bob Meigs

## Air Conditioning Contractors Hold Golf Meet

THE ANNUAL GOLF OUTING of the Air Conditioning Contractors' Alliance of Chicago is one of the main social events of the year for the association. The contractors are hosts to the people they do business with during the year. Union representatives, manufacturers' salesmen, engineers from the city building department, jobbers and others who contribute their services to the air conditioning industry are guests of the association.

The day starts early, with the golf tournament getting under way during the morning; pinochle and gin rummy get a play during the late afternoon and a roast beef dinner precedes the social hour. During the social hour some of the officers of the association and officers of the union and the building commissioner's department present short speeches on subjects of interest to both contractors and other industry representatives.

The social hour is concluded with the presenting of prizes to the winners of the golf tournament. This year Vince McGrath won the trophy for low gross and R. T. O'Grady was the winner of the low net trophy. Prizes were awarded guests for their scores, R. Lorenze winning the low gross prize and L. Walquist winning the low net guest prize. Blind bogey prizes were won by I. J. Boslough for the members' pool. Charley Bennett and H. C. Brownell won for the guests' pool.

The outing was held at the River Forest Golf Club in Elmhurst, with 86 members and guests attending.

### Indiana to Hold District Meeting

THE SHEET METAL & Warm Air Heating Contractors' Association of Indiana, Inc., will hold its third quarterly district meeting on Tuesday, October 19, at the Richmond Supply Corp., Richmond, Ind. Ralph B. Bell, president of the Richmond Supply Corp., will be host of the evening.

### Michigan Works On Emblem Plan

A BULLETIN from the Michigan Heating & Sheet Metal Association describes the *emblem plan* it has been working on for the past several years. This plan is designed to create customer confidence in contractors displaying the proposed emblem. To secure permission to use the emblem, a member must 1) agree to install all work in accordance with the appropriate manual of the National Warm Air Heating & Air Conditioning Association and any governing laws or ordinances, and 2) present a standard form of guarantee to the customer upon request. Complaints of improper installations will be investigated by a committee of qualified contractors. If the committee believes the complaint is valid, a formal hearing will be arranged,

# WITH THE ASSOCIATIONS

(Continued)

and should the member be found guilty of violation, he will be given a period of time in which to bring the job up to standard. If he fails to do so, the association may order another member to remedy the deficiencies at the offending contractor's expense.

Such a plan, the association believes, offers protection to the customer and also protects a member whose work has been examined and found proper by the committee.

## IGHI Has First Fall Meeting

THE INSTITUTE of Gas Heating Industries, Inc., (Los Angeles), held its first fall meeting on Thursday eve-

ning, September 9. Among the events planned for this meeting by Ed Cosgrove, program committee chairman, was a warm air heating-radiant heating panel discussion with particular emphasis on year-round conditioning.

## Milwaukee Group Discusses Bylaws

MEMBERS of the Milwaukee Sheet Metal Contractors' Association met in September at the Cape Cod Inn to discuss suggested changes in their constitution and bylaws. The directors' meeting began at 4:00 p.m. and was followed by dinner at 6:00, after which the regular monthly business meeting took place, and the members voted to approve the proposed changes.

## Coming Events

Nov. 29-30—National Warm Air Heating and Air Conditioning Association, board and committee meetings. Cleveland Hotel, Cleveland. George Boeddener, Managing Director, 145 Public Sq., Cleveland 14.

Dec. 1-2—National Warm Air Heating and Air Conditioning Association, annual convention. Cleveland Hotel, Cleveland. George Boeddener, Managing Director, 145 Public Sq., Cleveland 14.

Jan. 20-22—National Heating Wholesalers Association, Inc., annual convention. Bellevue-Stratford Hotel, Philadelphia. C. Stuart Rambo, Executive Secretary, 228 N. LaSalle St., Chicago 1.

Jan. 23-26—New York State Sheet Metal, Roofing & Air Conditioning Contractors' Association, Inc., annual convention. Mark Twain Hotel, Elmira, N. Y. Clarence J. Meyer, Secretary, 567-69 Genesee St., Buffalo.

Jan. 24-27—American Society of Heating and Ventilating Engineers, 61st Annual Meeting. Bellevue-Stratford and Benjamin Franklin Hotels, Philadelphia. A. V. Hutchinson, Secretary, 62 Worth St., New York 13.

Jan. 24-28—International Heating and Ventilating Exposition—the Air Conditioning Exposition. Commercial Museum, Philadelphia. Managed by the International Exposition Co., 480 Lexington Ave., New York 17, and sponsored by the ASHVE.

Feb. 3-4—Sheet Metal & Warm Air Heating Contractors' Association of Indiana, annual convention. Hotel Severin, Indianapolis. Frank E. Anderson, Secretary, 439 S. 17th St., Terre Haute.

Feb. 10-12—Sheet Metal Contractors Association of Minnesota, annual convention. Hotel Lowry, St. Paul. H. T. Helle, Secretary, 531 Rice St., St. Paul 3.

Feb. 24-25—Michigan Heating & Sheet Metal Association, annual convention. Bancroft Hotel, Saginaw. N. J. Biddle, Secretary, 3035 E. Grand Blvd., Detroit 2.

Feb. 28-Mar. 2—Ohio Sheet Metal Contractors' Association, annual convention. Sheraton-Gibson Hotel, Cincinnati. William C. Lumm, Secretary, 2512 Albion St., Toledo.

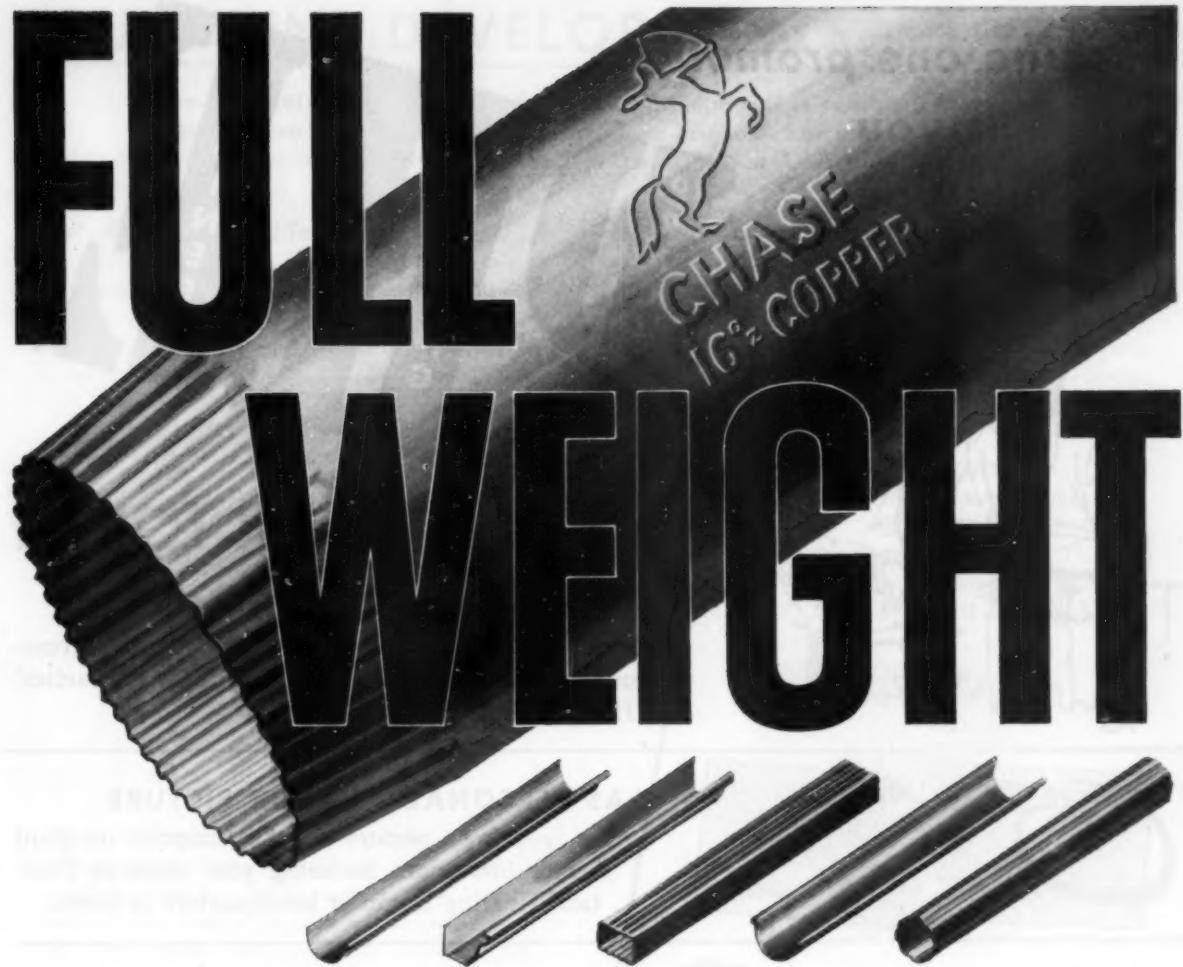
Mar. 7-9—Sheet Metal Contractors' Association of Wisconsin, annual convention. Hotel Schroeder, Milwaukee. Robert Schmieder, Secretary, 225 E. Michigan St., Milwaukee.

Mar. 25-26—Sheet Metal, Air Conditioning & Roofing Contractors' Association of Pennsylvania, annual convention. Brodhead Hotel, Beaver Falls. Earl W. Liebermann, Secretary, 1411 Merchant St., Ambler, Pa.

Apr. 4-7—Oil-Heat Institute, annual convention. Edgewater Beach Hotel, Chicago. R. H. L. Becker, Managing Director, 500 5th Ave., New York 36.

Apr. 24-27—Sheet Metal Contractors Association of Illinois, Inc., annual convention. Pere Marquette Hotel, Peoria. Jay E. Harms, Secretary, 1619 N. Sheridan Rd., Peoria.

Apr. 27-30—Sheet Metal Contractors' National Association, annual convention. Mark Hopkins Hotel, San Francisco. J. D. Wilder, Executive Secretary, 170 Division St., Elgin, Ill.



**Chase® copper roofing products are  
16 ounce copper or heavier—last years longer!**

When you choose roofing products, look for the die-stamped Chase Trade Mark and Weight Stamp—your assurance of quality, stability and permanence.

To withstand the weight of snow and ice, Chase copper downspouts, gutters, elbows and shoes are all 16 ounce copper or *heavier*. All corrugations are deep and generous... ample for temperature changes in *any* climate.

Chase copper leaders are formed from full-width strips, to assure strong, expansion-proof seams. And, since Chase copper roofing products can be joined with standard soldering techniques, the installation will *stay* watertight and leak-proof *for good*.

Chase copper roofing products simply *can't* rust, will resist atmospheric and weather conditions that ruin less durable materials. So insist on *Chase* copper roofing products.

For more information on copper roofing products and flashing, send for the free Chase Copper Roofing Products Booklet.

**Chase**   
BRASS & COPPER CO.

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Baltimore	Cleveland	Houston	Milwaukee	New York	Rochester†	Waterbury
Boston	Dallas	Indiansapolis	Minneapolis	Philadelphia	St. Louis	(Sales office only)

**The one promotion  
that sells you  
and only you  
as the...**



**P.H.E.**  
PRACTICAL  
HEATING  
ENGINEER

## IN YOUR TOWN

### IT'S AS LOCAL AS YOUR NEIGHBORS

Direct mailings to every home owner in your community selling you and your service as a Practical Heating Engineer.



### AS PERSONAL AS YOUR PICTURE

Yes, your own picture and firm imprint on giant 3-color broadsides featuring your store as Practical Heating Engineer headquarters in town.



### PRACTICAL... NEW LOW PRICES

Sell Williams, a complete line of Oil Heating, Gas Heating, and Year-Round Air Conditioning for homes of every size... now at new low prices.



Please rush me full information on

<input type="checkbox"/> P.H.E. Promotion	<input type="checkbox"/> Oil-O-Matic heating
<input type="checkbox"/> Gas-O-Matic heating	<input type="checkbox"/> Air-O-Matic air conditioning

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City..... State.....



WILLIAMS DIVISION **Eureka Williams** COMPANY BLOOMINGTON, ILLINOIS

**WILLIAMS  
OIL-O-MATIC  
GAS-O-MATIC  
AIR-O-MATIC**

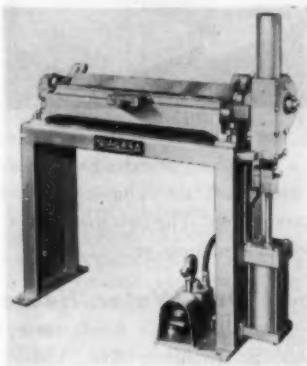
Division of  
HENNEY MOTOR COMPANY, INC.

# EQUIPMENT DEVELOPMENTS

The latest information on manufacturers' developments is presented here with brief summaries of the applications of these products. For additional product information which is available, see this month's New Literature department.

## Bar Folding Machines

LINE OF ADJUSTABLE bar folders which are air actuated to increase production and reduce operator fatigue — Niagara Machine & Tool Works, 683 Northland Ave., Buffalo 11. Used for bending or folding sheet metal to an angle or lock, the machines are suited to shops



where air is available at pressures from 70 to 80 psi. A foot-operated valve controls the flow of air to the actuating cylinder. Initial movement of the piston automatically clamps the work in place while the folding blade rotates. Release of the pedal instantly reverses the action, the company states. An adjustable stop limits the bend to the desired angle. The width of the fold is controlled by a gage. The folders are available in four sizes to handle working lengths from 21 to 42 in. and thicknesses of 20 gage mild steel and lighter.

## Fuel Unit Tester

PORTABLE TESTING unit designed to simplify oil burner servicing and to facilitate pump repairs — Kingsley Mfg. Co., 420 Howard Ave., New Haven. It is offered with pump flange, reversible 1/3 hp motor, U. S. gages, pressure fuel lines, couplings, adapters, a parts catalog and complete instructions. The unit allows for factory rebuilding and testing in the shop or field, the company states.

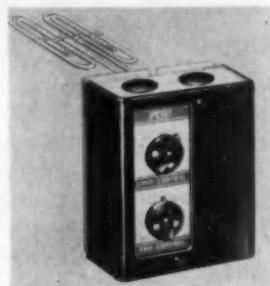
## Circular Ceiling Air Diffusers

SERIES OF ADJUSTABLE and non-adjustable circular ceiling air diffusers — Air Devices Inc., 185 Madison Ave., New York 16. The adjustable units have built-in segmentized air controllers designed to produce any angle of air discharge from above horizontal to vertical without disturbing the relative position of the

spinnings. Four 90 deg segments, independently adjustable, permit horizontal blows from one segment, vertical from a second, 45 deg downward from a third and 20 deg from a fourth, if desired. All adjustments may be made after installation. There is a wide outer flange to compensate for inaccuracies in plaster openings.

## Improved Furnace Controls

NEW FAST acting element and universal voltage contacts now incorporated in liquid expansion furnace controls — Penn Controls, Inc., Goshen, Ind. The Type 518 limit control and Type 520 combination fan and limit control will be equipped with a new grid type



element for faster response, and gold plated contacts will be added to the limit or limit side of the controls so that they can handle line voltage, low voltage or millivolt service. The grid type element will also be added to the Type 519 fan control. The changes are intended to help dealers reduce inventories since more than one type of control need not be stocked for the various control circuit voltages.

## Fiber Glass Roofing and Siding Sheets

OPAQUE GRAY sheets of polyester-fiber glass corrugated roofing and siding especially designed for locations where there might be corrosion due to chemical and acid fumes — Resolite Corp., Zelienople, Pa. Test samples immersed in a 3 per cent solution of sulfuric acid for three months showed no appreciable structural change, the company states. The material is molded in corrugations to nest with all standard roofing and siding sheets.

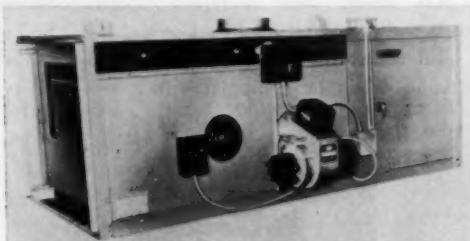
## Power Roof Ventilators

MODEL B series power roof ventilators, available in wheel sizes of 12 to 60 in., to handle requirements from 1000 to 3800 cfm — W. R. Carnes Co., S. Main

St., Verona, Wis. The smallest model is a motor driven unit, while sizes of 15 in. and larger are belt driven. All-aluminum and galvanized steel construction are standard; copper construction is also available. All units have backwardly inclined, centrifugal fan wheels. The motor hood is hinged for easy access to the drive and the motor is isolated out of the air stream.

### **Suspended Oil Fired Furnace**

MODEL 01-245-S19 oil fired, 196,000 Btu output suspended furnace designed particularly for two bay service stations — Jackson & Church Co., 321 N. Hamilton St., Saginaw 65, Mich. There is no internal baffling; the heat exchanger area can be cleaned out without removal of the burner or wiring. The blower



compartment is accessible from both sides, making it possible to remove the blower and motor without disturbing any components or disconnecting ductwork. The wiring harness has been simplified. There is a bottom horizontal discharge blower. Overall length is 77 1/8 in.; height, 27 1/8 in.; and width, 32 1/8 in. The unit is shipped complete with burner, blower, blower motor and controls.

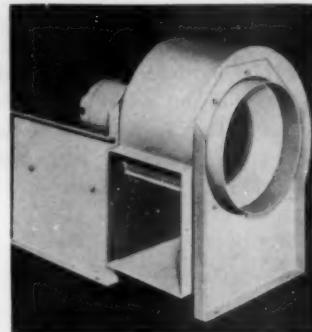
### **Gas Cylinder for Soldering Torches**

NEW LARGE CAPACITY, portable "35" (35 lb capacity) cylinder designed to provide longer burning time when supplying gas fuel for soldering torches and furnaces — The Insto-Gas Corp., 1977 E. Woodbridge, Detroit 7. It is especially useful for operating two pieces of equipment at the same time, where a dual hook-up is necessary or practical. The cylinder incorporates a wide base with curled foot ring for stability. It is made of high tensile steel, and tare weight is 35 lb, making a total weight when filled of 70 lb.

### **Large Volume Blower**

TYPE MD large volume fan, available with direct or v belt drive, for standard or heavy duty applications — Chicago Blower Corp., 9867 Pacific Ave., Franklin Park, Ill. It is designed for easy installation and quiet performance. Fan ratings are certified in accordance with the test code jointly adopted by the NAFM and the ASHVE. Volumes for the direct drive model, (shown) offered in five sizes, are 400 to 3250 cfm with pressures to 1 1/2 in. static pressure. For the v

belt model, volumes range up to 18,000 cfm and pressures to 1 1/2 in. static pressure. Fourteen sizes are offered, ranging in wheel diameters from 7 15/16 to 33 in. Housing and bases are fabricated of heavy sheet steel with continuous welded seams. Streamlined fan inlets provide high efficiency and low operating



noise levels, the company states. The direct drive model, with a forward curved wheel, is designed for commercial uses such as exhausting kitchen odors, ventilating garages, etc. The belt driven fan is intended for use in hospitals, schools, etc.

### **Glass Lined Gas Water Heaters**

"KEYSTONE" glass lined gas fired water heaters — Crane Co., 836 S. Michigan Ave., Chicago 5. They are offered in 20, 30 and 40 gal sizes, the smallest rated at 21,000 Btu, the other two at 28,000 Btu (or 32,500 Btu when equipped with gas pressure regulators). Features include a "Unitrol" control designed to provide 100 per cent shutoff, a magnesium anode rod, and heavy fiber glass insulation.

### **Magnetic Gas Control Valve**

MODEL K-3A magnetic gas valve for warm air furnaces and unit heaters, designed to avoid valve closing impact noise and hum — General Controls Co., 801 Allen Ave., Glendale 1, Calif. It opens and closes gas lines at the demand of room thermostats,



limit controls and other devices. The valve is a soft seated type and has a specially designed solenoid which makes it humless, the company states. The valve disc is made of synthetic rubber. It is brought into the shutoff position by spring action plus the steady pressure of gas. Current consumption is low, and upon interruption of the current, the valve im-

(Please turn to page 146)

# NEW SKIL 1/4" DRILL

**55% more powerful...  
yet lighter in weight!**

**MODEL  
75**

**Boosts production!  
More comfortable  
in use! Cuts costs!**

There's big portable drill news here for you!

A new SKIL heavy-duty drill that's 55% more powerful... while it's actually *lighter* in weight!

Here is clearly your short cut to reduced time and labor costs... to increased output in every phase on your production line.

Here is performance without equal... top operating power... longer operating life. Capacity:  $\frac{1}{4}$ " in steel,  $\frac{1}{2}$ " in wood. A choice of 7 speeds available, from 500 to 5000 r.p.m. . . . designed to meet your individual work needs.



## LOOK OVER THESE IMPORTANT FEATURES:

- All anti-friction bearings—for greater efficiency and low maintenance.
- Motor 55% more powerful, yet *lighter* than previous model.



- Contour-fit handle for easier and more comfortable handling.



- Handy, safety-designed trigger lock for continuous operation—side location for easy operation.



- New molded rubber strain relief—protects cord against fraying or breakage at drill cord attachment joint.

- Larger inspection plates, easily removed for checking and cleaning.



## FREE!

**Convincing Demonstration and Trial Prove "SKIL is the Answer" to Your Production Bottlenecks! Send Coupon Today!**



## MAIL THIS COUPON!

SKIL Corporation, Dept. AA-104  
5033 Elston Avenue, Chicago 30, Illinois

I would like a demonstration and trial... Free!  
 Please send me illustrated literature on the new SKIL Model 75  $\frac{1}{4}$ " Drill.

Name. \_\_\_\_\_

Company. \_\_\_\_\_

Street. \_\_\_\_\_

City. \_\_\_\_\_ Zone. \_\_\_\_\_ State. \_\_\_\_\_

# Now you can get every type of warm air equipment from one convenient source: CRANE



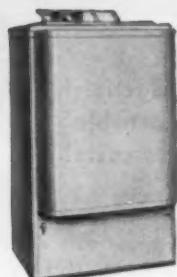
Gravity Furnaces—  
Gas or Oil



Hi-Boy Furnaces—  
Gas or Oil



Basement Furnaces



Year-Round  
Air Conditioners



Industrial Furnaces—  
Oil

Whatever your customers need, you can buy it from Crane

**Crane offers oil- or gas-fired basement furnaces, hi-boys, counterflows, gravity furnaces, industrial furnaces, horizontal furnaces, conversion burners . . . unit heaters . . . controls . . . duct and fittings, registers, grilles, warm air baseboard . . . year-round air conditioners, summer air conditioners, room air conditioners . . . everything for warm air heating!**

The easiest way to handle all types of warm air heating equipment is to order them all from one convenient source. And it's the *best* way, too, when that source is Crane.

You can be sure that whatever you get from Crane will be outstanding for engineering, design,

and all-round quality. Crane can supply exactly the right type of equipment for each and every installation. And delivery is prompt, because Crane has conveniently located Branches and Wholesalers in all principal cities.

Those are a few reasons why more and more alert heating dealers are concentrating on Crane equipment. They find it pays off, every way they look at it!

You'll find the same thing.

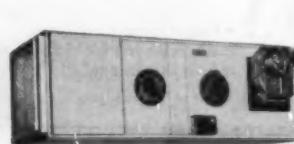
Ask your Crane Branch or Crane Wholesaler for complete information.

## CRANE CO.

GENERAL OFFICES: 836 SOUTH MICHIGAN AVE., CHICAGO 5  
VALVES . . . FITTINGS . . . PIPE . . . PLUMBING AND HEATING



Counterflow Furnaces—  
Gas or Oil



Horizontal Furnaces—  
Gas or Oil



Steel Gravity  
Furnaces



Gas Unit Heaters



Room Air Conditioners



Gas Conversion  
Burners



Oil  
Conversion  
Burners



Controls



Ducts and Fittings



Floor Diffuser  
Registers



Base Diffuser  
Registers



# WHY DUCTWORK IS MORE PROFITABLE

## with Kaiser Aluminum Utility Sheet!

**Easier to fabricate** — Work goes faster and more efficiently because Kaiser Aluminum Utility Sheet is light in weight, clean and easy to form. This means big savings in the shop and in field assembly. Guaranteed to take Pittsburgh Lock Seam.

**Greater heat delivery** — Delivers much more heat than bare galvanized or asbestos paper-covered ducts because of aluminum's low emissivity and high thermal reflectivity. Will even deliver slightly more heat than metal ducts covered with  $\frac{1}{4}$ " asbestoscel insulation. Also delivers more cool air in air conditioning systems.

**Lower overall cost** — Equivalent weight of aluminum covers three times as much area as galvanized. Metal and fabrication time are saved because aluminum's efficiency means 12% smaller ducts can be used. No waste from edge shearing or trimming. Saves 10 to 12 per cent in installed cost because of faster handling and erection, because aluminum requires no insulation, and because lighter supports are needed.

**Greater durability** — Kaiser Aluminum Utility Sheet is strong and rugged—will take a beating without damage.

No red rusting, no coatings to crack or peel. Unaffected by moisture condensation. Will last full building life under normal conditions.

Figure your next job in Kaiser Aluminum Utility Sheet and get better ducts with less work and lower costs! Experienced assistance available on design, fabrication technique, installation methods. For complete information contact any Kaiser Aluminum sales office located in principal cities or one of our distributors—listed in the yellow section of your telephone directory. Kaiser Aluminum & Chemical Sales, Inc. General Sales Office: Palmolive Bldg., Chicago 11, Ill.; Executive Office: Kaiser Bldg., Oakland 12, California.

## Kaiser Aluminum UTILITY SHEET

The low cost metal for ducts and general sheet metal work

**IMPORTANT INFORMATION ABOUT GAUGE SIZES!** The Brown & Sharpe gauge used for aluminum is two numbers *higher* than the Standard gauge used for galvanized. Thus, for example, 18 ga. aluminum and 20 ga. galvanized are the same thickness (.040").

**SEND COUPON FOR FREE FOLDER!** →

Helps you take full advantage of aluminum's unique combination of properties. Availability charts on Kaiser Aluminum Utility Sheet in both flattened and coiled sheets, including thicknesses, weights, etc. Also contains weight and coverage comparisons for aluminum and galvanized. Mail coupon today!

KAISER ALUMINUM & CHEMICAL SALES, INC.

Industrial Service Division  
5872 Kaiser Bldg., Oakland 12, California

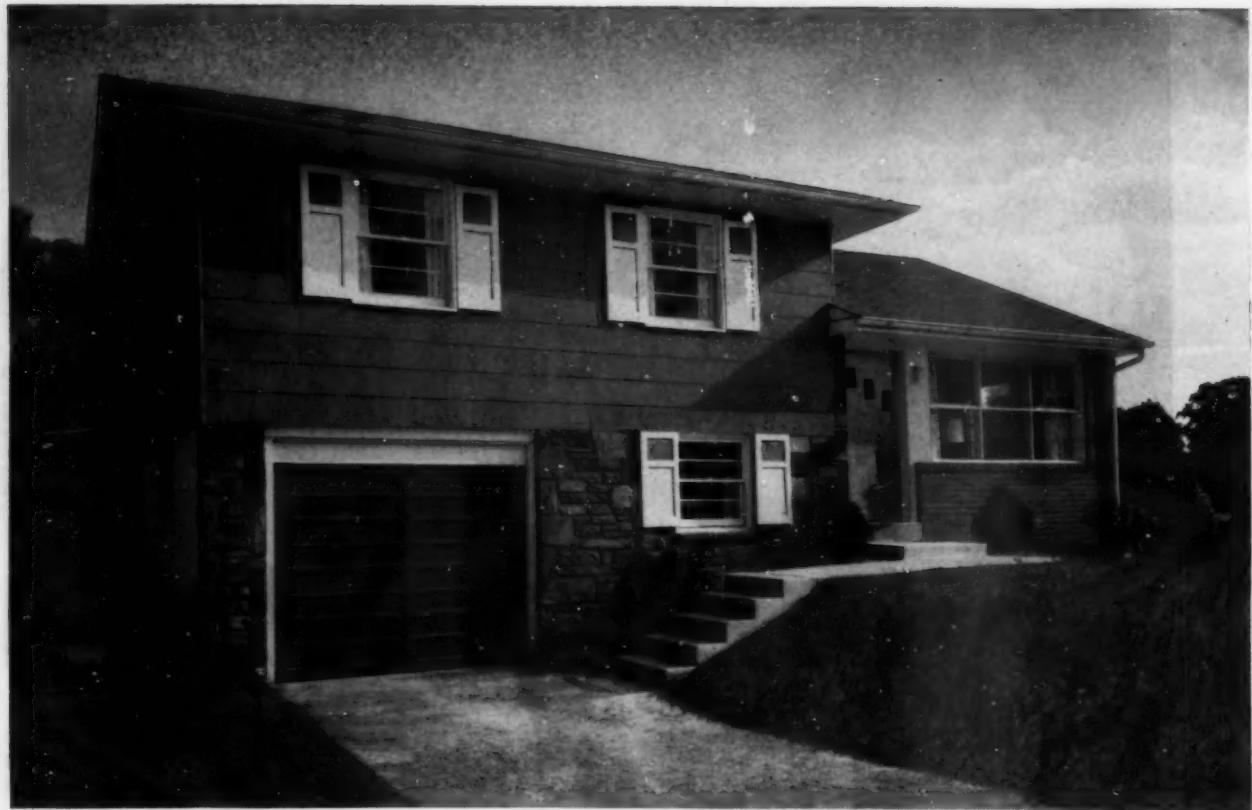
Please send \_\_\_\_\_ free copies of folder entitled  
"Kaiser Aluminum Utility Sheet."

NAME \_\_\_\_\_

COMPANY \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_



One of 1,200 Bodek-built Electronic Comfort homes in Lawrence Park, Philadelphia, Pennsylvania. Electronic Moduflow was installed in these air conditioned houses by Heating Dealers McKee and McHale, shown below.

## "What a whale of an order— Electronic Moduflow for 1,200 air conditioned houses!"



Joe McHale, standing, and Frank McKee.

*say Philadelphia Heating Dealers Joe McHale and Frank McKee*

"A leading Philadelphia builder, Ralph Bodek, recently threw us a real challenge—the proper temperature control system for his 1,200 new, year-round air conditioned houses!"

"We knew he wanted to offer the best in modern, year-round comfort. That's why we recommended Honeywell Electronic Moduflow with its *outdoor* thermostat.

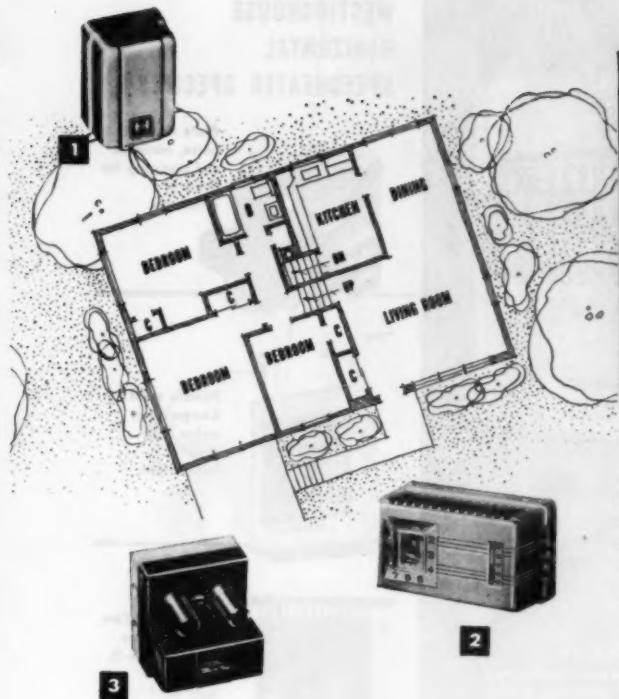
"When we told this builder that his home would have indoor temperatures which were automatically adjusted to the outside weather, he knew he was getting the ultimate in modern temperature control.

"Electronic Moduflow has great sales appeal for homeowners. It's easy to see how two thermostats—one outside and one inside—will work better than the conventional *one* thermostat system.

"Moduflow does away with cold wall chill, and those aggravating periods of underheating and overheating. It really gives *constant* comfort!"

"Another fine thing about Honeywell Electronic Moduflow—it's easy to install and service, in existing homes as well as new homes. It's ideal for any house with an adequate heating or cooling system."

## Why your customers need varying indoor temperatures



### How Electronic Moduflow works

The Electronic Weathercaster (1), mounted outside the house, senses the outdoor temperature and by means of electronic signals continually tells the Electronic Clock Thermostat (2) what indoor temperature is required to maintain comfort. This Electronic Clock Thermostat, mounted in the living room, signals the Relay Amplifier (3) which automatically tells the heating or cooling unit to provide the amount of heat or cooling required to keep the house at the right temperature—no matter how changeable the weather might be.

### LIFE MAGAZINE ADVERTISING CAMPAIGN HELPS PRE-SELL YOUR PROSPECTS

Honeywell is using an extensive national advertising program—13 spreads in LIFE Magazine to keep increasing demand for Electronic Moduflow. In addition, literature, displays and other materials are available to you. Write for them.

MINNEAPOLIS  
**Honeywell**

### Electronic Moduflow



112 OFFICES ACROSS THE NATION



*Discomfort—with constant indoor temperatures*

A fixed indoor temperature does not mean your customers will be comfortable. Tests show that if indoor temperature is *merely held constant* as the temperature outdoors falls, they'll feel chilly and uncomfortable. This happens with ordinary temperature control systems, because as the walls of the home become colder they "draw" more heat from the body.



*Comfort—with varying indoor temperatures*

With Electronic Moduflow in your customer's home, the colder it gets outside, the higher the temperature inside becomes. Colder walls are offset by this higher inside temperature. For example, when the outside walls of a house grow colder, a person may require 74° to feel comfortable. And previously he was comfortable at 71°. Electronic Moduflow solves this personal comfort problem automatically—and furnishes a wonderful new kind of comfort in the home.

\*\*\*\*\*  
MINNEAPOLIS-HONEYWELL REGULATOR COMPANY  
Dept. AA-10-207, Minneapolis 8, Minnesota

Gentlemen:

Please have your representative show me your "Dealer Profit" program for Electronic Moduflow.

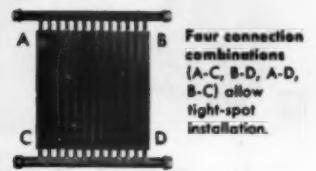
Name.....

Address.....

City..... Zone..... State.....



**CHECK THESE  
WESTINGHOUSE  
HORIZONTAL  
SPEEDHEATER SPECIALS!**



**The traditional value in unit heaters—**

# Westinghouse Speedheaters®

**for instant heat...quiet heat...low-cost heat**

Built for strength, built for style, built to install easily and satisfy for years.

For today's outstanding heating value, look to a pioneer name in unit heaters—look to Westinghouse Speedheaters! Check, before you specify, all the features that add up to traditional Speedheater superiority:

- (1) **instant heat**—generated at the flip of a switch, and all of it effective heat because the Speedheater one-row, plate-fin heating element assures most efficient heat flow;
- (2) **quiet heat**—the Speedheater, always known for silent operation, is quieter than ever! Aluminum plate fins, mechanically bonded, cut noise . . . rugged, welded construction eliminates rattles . . . powerful die-formed fans send heat where it's needed, do it *quietly*;

(3) **low-cost heat**—heat that saves dollars on fuel (up to 25% savings in present installations over old-style systems), more dollars in pure-and-simple efficiency in heating spots or large zones, in supplementing central systems in any required pattern.

Check other Speedheater values, too: the pliable steel hanger straps and flexible connection combinations (see cuts) that simplify Horizontal model installation . . . the multiple-cone diffusers on Downblast model that give positive heat control, especially desirable for buildings with high ceilings . . . the all-purpose AGA-approved Gas-Fired model that eliminates the need for central system heating. For full information call your Westinghouse-Sturtevant heating specialist now. Or write: Westinghouse Electric Corporation, Sturtevant Division, Hyde Park, Boston 36, Mass.

## WESTINGHOUSE AIR HANDLING

YOU CAN BE SURE...IF IT'S **Westinghouse**

J-80421



**The Choice of Leading  
Original Equipment  
Manufacturers**

# **MORRISON BLOWERS**

**For Sturdiness and Quiet Operation**

Whether you buy MORRISON Parts and build your own Blower Assemblies or buy complete Blowers, you get MORRISON quality and design . . . the advantage of MORRISON unequalled engineering "know-how".

If space and manpower permit, you can build your own Assemblies at a saving of 50% of your Blower dollar investment. Otherwise, you can buy MORRISON Complete Blower Assemblies. In either case you are sure of the latest in design, the finest in workmanship . . . Blowers and Parts that are "the choice of the leaders".

MORRISON engineers will build the equipment that is best suited to your needs. Write today for literature and prices.

**MORRISON PRODUCTS, INC.**  
**16816 Waterloo Road, Cleveland, Ohio**

# USS Galvanized Steel Sheets

## assure uniformity in quality throughout the job



WHEN you select USS Galvanized Steel Sheets to construct a large ductwork installation in a multi-storyed building, you can be sure of uniform quality from the first sheet to the last. USS Galvanized Steel Sheets are manufactured according to rigid specifications, and every shipment is carefully checked to make sure that it conforms.

USS Galvanized Steel Sheets fab-

ricate easily, even under difficult working conditions. They are uniform in softness, flatness and surface . . . can be rolled, bent, cut, stamped or soldered. The heavy, corrosion-resisting zinc coating won't crack or flake during handling.

Your customers are familiar with USS Steel Sheets — and the USS Label. They know this label stands for dependable quality in steel of

every kind. To assure continuing good jobs and customer approval, be sure to specify USS Galvanized Steel Sheets by name when you place an order.

For more information about USS Galvanized Steel Sheets, ask your sheet distributor or our nearest district office. United States Steel Corporation, 525 William Penn Place, Pittsburgh 30, Pa.

UNITED STATES STEEL CORPORATION, PITTSBURGH • COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO  
TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA. • UNITED STATES STEEL SUPPLY DIVISION, WAREHOUSE DISTRIBUTORS, COAST-TO-COAST  
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

## USS GALVANIZED STEEL SHEETS



UNITED STATES STEEL

# Modine gas-fired unit heaters' light weight SAVES YOU MONEY 3 WAYS



Garages, warehouses, factories, stores—all find Modine Gas-Fired Unit Heaters the low-cost answer for balanced heating.

## 1. LOWER SHIPPING COSTS

Gas units are shipped F.O.B. factory. Modines' light weight cuts shipping costs to a minimum. You pay no freight on excess weight.

## 2. LOWER MATERIAL COSTS

Modines require no special structural or ceiling reinforcements . . . another saving in installation cost.

## 3. LOWER LABOR COSTS

Modines are easier, quicker to install . . . need no hoists or lifting aids. One contractor saved \$600 by installing 66 Modines instead of competitive units . . . savings he passed on to the buyer.

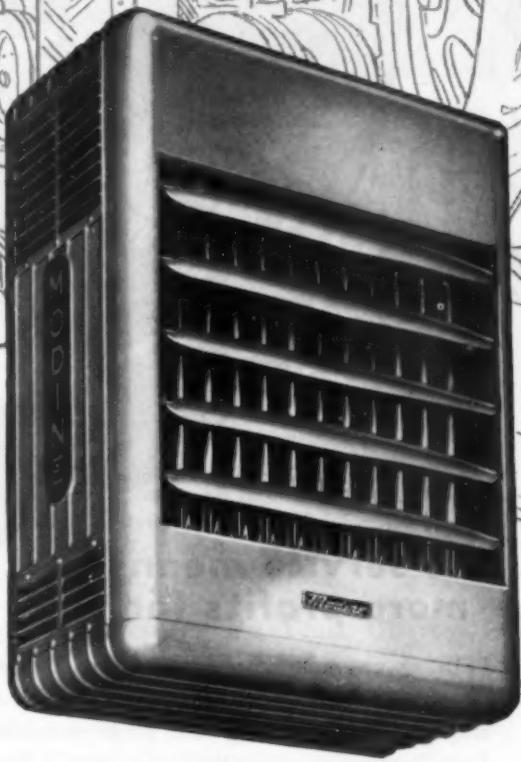
Here's a unit heater so far ahead in design it far outperforms other leading makes—yet needs only half the weight, half the size to do it. You get longer life . . . dependable, trouble-free operation. For only Modine offers stainless steel burners plus a choice of stainless or aluminized steel heat exchangers. And stainless has eight times the life of ordinary steel . . . aluminized four times!

There are other points of superiority, too—direct firing of tubes . . . heat delivery within five seconds of the thermostat's demand. Seven sizes to 220,000 Btu. Get all the facts now.

This Modine Gas-Fired Unit Heater has 25,000 Btu input . . . yet weighs only 31 lbs. Ideal for factory offices, laboratories, washrooms.



You'll find a Modine representative listed in your classified phone book. Or mail the handy coupon.



## Modine UNIT HEATERS

### MODINE MANUFACTURING COMPANY

1580 DeKoven Ave., Racine, Wis.

Please send me immediately a free copy of Bulletin 654 "Modine Gas-Fired Unit Heaters."

Name \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zn \_\_\_\_\_ State \_\_\_\_\_



Mr. Contractor: This  240 GYR oil control  
**positively stops  
 furnace  
 oil-flow  
 trouble**



**FIRST CHOICE  
 OF MAJOR FURNACE  
 MANUFACTURERS**

**...less service means  
 more profits for you**

THERE are many good reasons why furnace manufacturers select A-P oil control valves as original equipment. Most important to you is the *greater profit protection* you can expect from installations using the Series 240 GYR valves. Safe, even oil flow eliminates call-backs. More heating convenience and less furnace shut-downs keep customers "sold" on you!



**Quickly converted to  
 thermostatic operation**

Conversion to wall thermostat operation, in a matter of minutes, assures complete customer comfort and convenience — PLUS additional profit for you.

**A-P CONTROLS CORPORATION**

2452 N. 32nd Street, Milwaukee 45, Wisconsin

*In Canada: A-P Controls Corp., Ltd., Cooksville, Ontario • For Export: 13 E. 40th Street, New York, N. Y., U. S. A.*

**First Choice . . .  
 and here's why**

**SAFE** Fail-safe mechanism positively shuts off oil if thermo unit is damaged, or in case of excessive bonnet temperature.

**ECONOMICAL** Precise oil metering saves fuel. Control instantly adjustable for exact high-low fire desired.

**ACCURATE** Automatic compensation for difference in oil temperature assures constant oil flow. Needle-valve is self-aligning.

**DEPENDABLE** Exclusive vinyl plastic finished, corrosion-resistant case. Minimum of moving parts. Built-in fine-mesh strainer removes all foreign matter.

*Write for a copy of A-P Condensed Catalog and data on all A-P Controls and Conversion Kits.*



for Air • Liquids • Gases • Refrigerants

**DEPENDABLE Controls**

## Stop, Look and Listen



by  
**George Hochstein**

Sales Manager, Heil Heating Division  
THE HEIL CO.

A hundred times you've heard, "You can't tell that prospect anything. He thinks he knows it all."

Don't we all think a little that way? Several years ago an opinion poll included a question as to whether the "Metallic Metals Act" should be under State or National control. Of course, there wasn't any such act. Nevertheless, 70 percent of the people polled expressed a definite opinion one way or the other.

It goes against the grain to admit we don't know. We like to exhibit our knowledge, however, mistaken.

So let 'em talk. Learn how to listen. Chances are you will learn something that will make the sale easier when your turn comes again. How else can you find out what the specific needs, desires, and problems are?

Then, when you detect the point of greatest interest, you can bear down knowing you are on the right track. No salesman would continue to try to sell his new home owner prospect a boiler when the prospect insisted on installing a warm air furnace. And he can only find that out by listening. Oliver Wendell Holmes put it well: "Talking," he wrote, "is like playing on the harp. There is as much in laying the hands on the strings to stop their vibrations as in twanging them to bring out their music."

Good salesmen know this. They tell their story and listen. They never let a prospect get to the stage where he feels like shouting: "Now you listen to me!"



Your wholesaler  
is your  
partner ...

he's your  
purchasing agent

Sometimes buying is as much a headache to a retailer as selling. Whose units to buy? How many of each type? Might I buy the wrong size and be stuck with them? Every salesman claims his equipment is the best—how am I to know which is the best? How can I tell if I've actually seen the best?

Then there are the problems of procurement. Shipping instructions. Delays in shipping. Damages and claims. With it all goes endless correspondence. All those things take time you don't have to spare... time that could be far better spent tending to the profit-making functions of selling, installing, and servicing heating equipment.

### Let Your Wholesaler Do Your Buying

Your wholesaler makes it his business to know what to buy, and how much of it. You don't worry about it, you don't take the risk of stocking up on the wrong merchandise. All you have to do is ask, and you get the equipment you want, when you want it. You are free to concentrate on the parts of your business where you can make money.

It may seem to cost a few per cent more to buy from your wholesaler, but the money you save in the form of time, and the help you get from your wholesaler acting as your purchasing agent and in many other ways more than makes up for the slightly higher cost. If it weren't true that you can make more money when you buy from your wholesaler, not a one of them would be in business today.

One of a series of advertisements presented in the interests of better distribution of heating equipment all over America by THE HEIL CO., makers of HEIL Automatic Heat. This series is prepared in co-operation with the National Heating Wholesalers Association and the Central Supply Association.



# GET THE BEST FROM U.S.

## THE GREATEST AND MOST COMPLETE LINE ON EARTH



Judged from every angle, this outstanding new No. 1000 U. S. Base Diffuser has captured First Place with heating contractors. No other Baseboard Diffuser performs so well in these critical installations. Here are the SMOOTH GOOD LOOKS that please modern home owners — the MECHANICAL FEATURES that help you do a BETTER JOB, FASTER, and AT LESS COST.

Full-length balancing damper with patented Set-Lock. One man can balance the entire system. Ends the need for costly supply pipe

### NEW No. 1000 STRIP-BASE DIFFUSER

dampers. PATENTED adjustable Slide-Plate Bottom Openings let you set the diffuser where you want it and miss joists or other obstructions and also adjusts to any desired length of boot opening (by 2½ inches deep). The No. 1000 U. S. BASE DIFFUSER is available in two, four, and eight foot sections — thus making it possible to make up any Continuous Runs Regardless of Length. The No. 1000 U. S. BASE DIFFUSER also performs with EFFICIENT PERFECTION on Cooling and HEATING AIR CONDITIONING SYSTEMS.

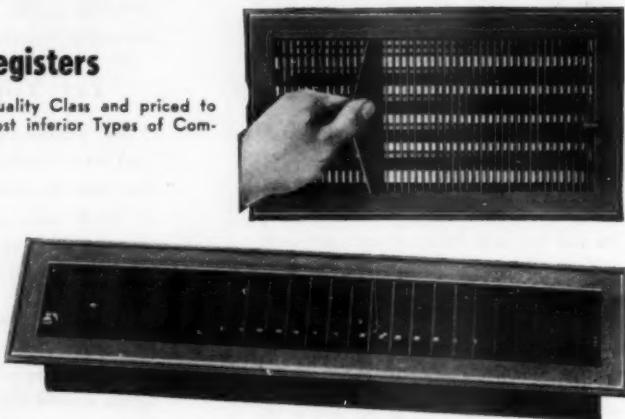
### No. 256 MULTIPLE-Valve U.S. A-C Registers

A STANDARD of COMPARISON and for Years The Most Copied Line in the AIR CONDITIONING REGISTER FIELD. Un-

equaled in its Quality Class and priced to compete with Most inferior Types of Competitive Lines.

### No. 410 U. S. DIFFUSER FLOOR REGISTERS

Quickly balanced from the face, this neat, trim U. S. Floor Diffuser spreads complete Air Coverage over wide areas of exposed wall and glass surfaces . . . proving over and over again that it is the best performer for all types of floor-installed PERIMETER systems.



SEND FOR LATEST LITERATURE, ENGINEERING DATA, PRICE LISTS

UNITED STATES REGISTER COMPANY

BATTLE CREEK, MICHIGAN

MINNEAPOLIS • KANSAS CITY • ALBANY

SOLD BY LEADING JOBBERS FROM COAST TO COAST

EVERYBODY'S TALKING ABOUT  
**ECONOMY\***



## \*International Economy®

Now hear this — no furnace line is more admirably suited to these budget-conscious times than International Economy®! Home owners who are tired of throwing money away on inefficient heating systems, are discovering there's only one man to see about good, economical heat — that's you . . . their Economy dealer!

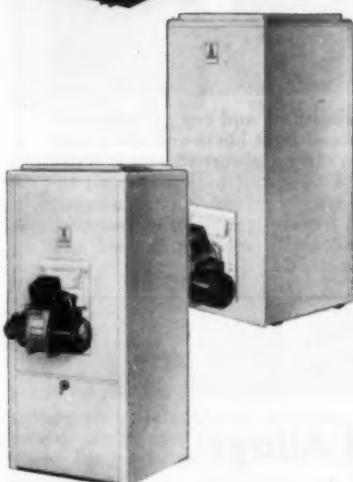
This year's Economy® furnace line is the biggest, most complete in 112 years. Oil . . . gas . . . coal — whatever fuel the customer prefers — Economy gives you the models, features and ratings to sell and satisfy every need.

If you're ex-navy, you know "scuttlebutt" means "talk" — well, the "scuttlebutt" is that Economy® dealers are in for plenty of additional profits this year. Get the facts . . . get set now to land your share.

*See your distributor — or write: Dept A-22*

You'll land more sales with...

### NEW ECONOMY OIL FURNACES

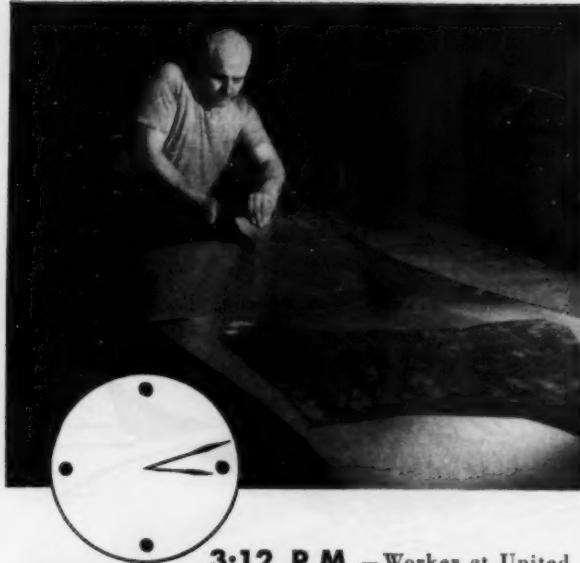


- 22 Models
- Ratings from 84,000 to 448,000 Btu. Output
- Widest Choice of Hi-Boys, Lo-Boys, "Low" Hi-Boys, Counterflow, and Gravity, Horizontals, etc.
- Assembled, and Not Assembled Models
- 10-Year Warranty on Heating Element, Casing and Combustion Chamber
- All Models Convertible from Oil to Gas

The Finest in Home  
Heating since 1842...



**INTERNATIONAL**  
Heater Co., Utica 2, N.Y.



**3:12 P.M.** — Worker at United Roofing and Waterproofing Company, Brooklyn, N.Y., cuts easily into Monel Economy Sheet (roofing temper) with ordinary shears. Sheet is .021 gauge. The fitting being cut out is one of 140 special rustproof flashings headed for Pier 57 operated by New York City's Marine and Aviation Dept.



**3:17:37 P.M.** — Final tamping locks edges of two pieces that make up the sheathing. Monel flashing needs no maintenance, will prevent leaks where heavy steel beams for hoist system crop out of pier roof. "Snipping, forming, knocking together — this .021 Monel sheet is very easy to work," says Mr. George Farbsten, United Roofing shop foreman.

## From sheet Monel to finished fitting in 5 minutes and 37 seconds

Thanks to its softer temper, Monel® Roofing Sheet is easy to work with in the shop and on the job. And Monel roofing gives *life-of-the-building* dependability at surprisingly low cost, because Monel's corrosion resistance, high tensile strength and good yield strength make it possible to use thinner gauge sheet.

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**On the job, too, corrosion-resisting  
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**Atop Pier 57, New York Harbor**, Monel sheathing and coping fabricated by United Roofing is quickly installed at base of hoist boom and along roof edge. Because pier is built to last a long time in metal-corroding salt water atmosphere, the architects took no chances. Monel was specified for all exposed sheet metal work. These copings and flashings, as well as louvers, expansion bands, gravel stops and window frames are corrosion-resistant, rustproof Monel. It's readily fabricated and easily soldered, brazed and welded. Needs no special tools, no special methods.

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... "for the life of the building"



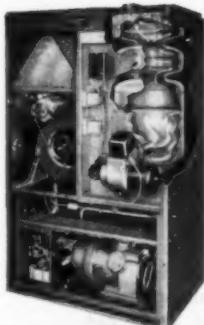
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WORTHINGTON MAKES AIR CONDITIONING NEWS



**It's here!**

**The smallest year-round home air conditioner on the market!**



**WHISPER-QUIET OPERATION.** Smooth-running compressor is hermetically sealed and shock-mounted. Vibration-free blower is permanently lubricated and dynamically balanced. Ceramic-coated heat exchanger muffles burner noise.



**ONE-POINT THERMOSTATIC CONTROL.** Home-owners can change from summer cooling to winter heating by flicking a switch and setting temperature wanted. No fiddling with dampers.

That's right! The brand-new, 1954 Worthington year-round air conditioner takes up less space than any other unit of the same capacity. It measures only 29" deep x 42" wide x 70" high, goes through a 30" door.

It's a completely modern forced-air heating and cooling unit; so good looking it can be installed in a playroom; so compact it can fit into a closet. We designed this unit for easy installation in any type of home.

Home-owners have their choice of

gas- or oil-fired heating. Either way, they get economical, balanced heat. And the hermetically sealed cooling unit has a five-year warranty.

Take a long look at some of its "years ahead" features shown in the photos. Then see your nearest Worthington distributor for more facts and figures. Ask for our new folder, "What Every Builder Should Know", C-1100-B54, or write Worthington Corporation, Air Conditioning and Refrigeration Division, Harrison, N.J.

A.4.58

**WORTHINGTON**

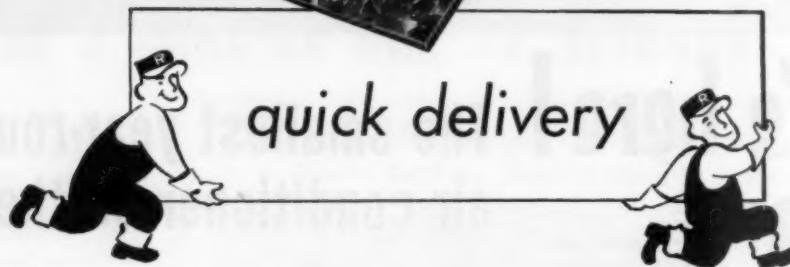


**Climate Engineers to Industry, Business and the Home**

Form readily without  
flaking or peeling

Clean and bright with  
uniform spangle

Long lasting  
protection  
against corrosion



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You're sure of getting highest quality galvanized every time from Ryerson . . . and sure of getting what you want FAST because our stocks are the world's largest. We offer many gauges in a wide range of pattern sizes, as well as sizes cut accurately to your order.

Ryerson galvanized is made by a special continuous process that results in a tight bond of zinc coat to steel. This coating takes any forming the steel will take without flaking or peeling.

ing. And, tight-coated galvanized looks better, keeps rust and corrosion sealed out all over.

When you order galvanized from Ryerson, remember, you can also get quick shipment of every other steel requirement: hot and cold rolled carbon steel sheets, stainless, Ry-ex expanded metal, angles, bands, etc.

So, for whatever you need in steel, and for metal working machinery and tools as well, call your nearby Ryerson plant.

# RYERSON STEEL

JOSEPH T. RYERSON & SON, INC. PLANTS AT: NEW YORK • BOSTON • PHILADELPHIA • CHARLOTTE, N. C. • CINCINNATI • CLEVELAND  
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## *editorial*

### On Picking The Right Man

THE SUBJECT of retirement frequently comes up in conversations with dealers around the country. Some of the dealers we talk with indicate they have thought about turning the complete operation of their business over to a competent manager when the time comes to retire. Others indicate they want to keep their fingers in this fascinating business of ours. But, they all have this thought in mind, "What kind of a person is best suited to handle my business affairs?"

A direct answer to a question of this sort is not always possible because the nature of that particular business needs to be studied and its requirements specified. For instance, a large sheet metal shop, accustomed to installing multiple ventilating systems, needs a man with experience in engineering, shop procedure, fabricating techniques, sales and business experience; whereas the requirements of a man to manage a shop that has specialized in roof and gutter repairs could be found in an entirely different type of man.

However, there are certain fundamental traits that all persons being considered for responsible positions must possess. These are traits of character more than of technical skill. A candidate for the job must have the virtues of honesty, loyalty and industry. There can be no compromise with these requirements — if a man has them, they are as obvious as if he lacks them.

Next on the list of requirements of a good manager are his physical characteristics. Health is essential to leadership, emotional maturity is vital to reach just decisions and temperance is necessary for reliability.

Another important trait of the good business man is a good personality. Charm is a natural gift to some people, others must learn to develop its use; but it is essential to friendliness, which no business can survive long without. Charm leads to tact and sincerity which are needed in the daily contacts with customers and suppliers.

No business can grow if the manager lacks enthusiasm — the "plus" factor that must be weighed carefully when reaching a final decision as to who will "carry on."

These are a few suggestions that can make the eventual retirement a success or a failure. Now is the time to pick your man and to help him develop those characteristics that will mean so much when he assumes full responsibility.



THE SALESMAN introduces himself and describes the company's services. Of 50 doorbells rung in a day, about 40 are answered; on an average nine prospects allow salesman to examine existing heating system . . .



FIVE WILL TAKE some minor service (cleaning or repairs) and one or two are prospects for major jobs. And these customers recommend the company to their neighbors, netting still more results from each call

## Cold Canvassing = Hot Leads

... for a dealer who classes doorbell ringing as his best "in" to new business. But he doesn't neglect other sales aids: a confidence-building sales approach, a large showroom and expert servicing

"DOOR-TO-DOOR canvassing is still the best sales method in the heating business."

That's the contention of Laurence Ingham, owner of Aire-Flow Heating Co. Mr. Ingham proves his point by citing the reasons for the steady growth of his firm to its current annual volume of more than \$200,000.

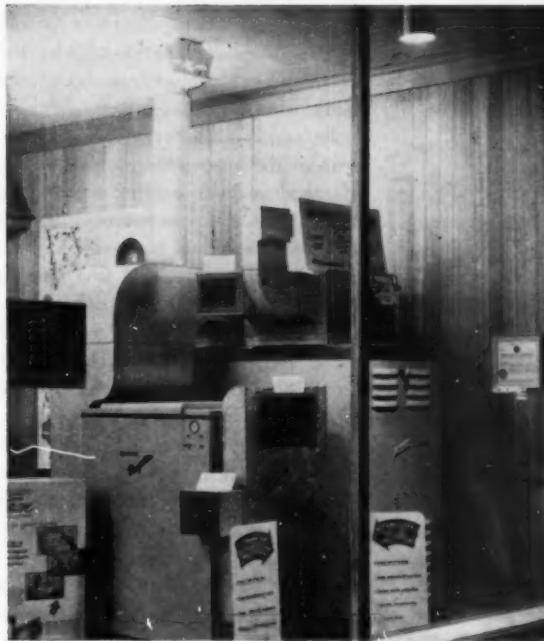
"Right now we get about 50 per cent of our leads from recommendations, 25 per cent from 'phone book ads, and the other 25 per cent from door-to-door selling," Mr. Ingham says. "The leads from the 'phone book are

toughest to sell, because there's usually plenty of competition. The canvassing leads are easier to sell, more profitable, and eventually result in the bulk of our recommendation business."

Although he has four full time engineer-salesmen, Mr. Ingham gets out and does quite a bit of canvassing himself. He chooses good neighborhoods where he feels that though there may be fewer prospects, a high percentage of those who do need heating work have the money to pay for it.



GETTING READY for a return call on a major sale, the salesman prepares himself with a drawing-board layout, an exact proposal and sales literature—then uses a low pressure approach, letting the customer close the deal himself



MODERN SHOWROOM is kept brightly lit at night . . .



AND CONTAINS operating units which Mr. Ingham (shown) and salesmen can use as "live" demonstrations



BUSINESS CONFERENCE for every major installation calls for representation from the sales, engineering and installation departments, with management sitting in as an advisor

While the basic aim of the canvassing is to make new friends and eventually to sell major jobs, the initial approach is an offer to make an estimate on minor work — cleaning the furnace in spring and summer, small repairs in the fall and winter.

Mr. Ingham says that he and his salesmen get to the stage of discussing heating at almost every home where someone answers the door. At one home out of five, he gets as far as inspecting the heating plant. On the basis of these inspections, he often sells some minor service work, sometimes sells nothing, and sometimes starts a conversion or complete new furnace sale.

#### Little Jobs Lead to Big Ones

"When we go out canvassing," Mr. Ingham says, "each of us may ring 50 doorbells in a day. Of those whose bells are rung, 40 will answer the door, eight to 10 will invite the man into the basement, about five will take some cleaning or repairs, and perhaps one or two will be prospects for major jobs. In cases where the prospect is interested in a modernized heating plant, we make an appointment to come back some evening. Just counting immediate results, we close about one major deal per hundred cold calls.

"But the long-term result is much greater. The customers who just wanted service may call us for a conversion job later, or may recommend us to a friend who needs a new furnace. To stimulate that, we try to make a new friend for the company on every call, no matter what the situation.

#### Low-Pressure Approach "Works Wonders"

"Sometimes a housewife says, 'We just put in a new gas furnace last year, and we're very happy with it.' Instead of turning away, we stay long enough to tell her a little about her heating plant, when to change filters, and then offer to make a service call any time it's needed at any hour of the day or night."

The result of this friendly, low-pressure approach, according to Mr. Ingham, is that a good part of the company's recommendation business comes through people for whom it has never done a major job. And the firm's salesmen, he says, "work wonders" with a low-pressure approach in selling their big jobs.

"We have a pack of wonderful sales arguments," Mr. Ingham says, "but we've found that closing the deal depends on building customer confidence. We concentrate on a detailed explanation of why we're planning the job in the one right way, and our open manner is what makes the sale."

In making his survey, Mr. Ingham usually takes the man of the house along and explains each thing he does. If asked to quote a price on the job, he politely declines "until I can make an estimate that's both fair and exact."

When he comes back, he has a drawing-board plan of the heating plant and first floor layout, and a definite price proposal. With both husband and wife, he goes over the sketch to explain exactly what will be done, what equipment is needed, and why. Casually, without any high-pressure attitude, he outlines some of the advantages of having the company do the job. He stresses that the firm guarantees a careful installation because it operates on an hourly rather than a piecework basis. The company, he points out, employs its own full time carpenter and electrician and has its own sheet metal shop. It offers 24 hour, seven day a week service. It is a very reputable firm, does all its financing through one bank, is certified by the gas utility and belongs to state, local and national associations dedicated to the heating industry.

#### "Using the User"

All these points are mentioned within the context of a step-by-step explanation of the job to be done. By the time the salesman has finished his presentation, most prospects already have agreed to the job and price as specified. If the customer doesn't give his approval on

the order, there is no renewed sales talk effort. Instead, a trip to the home of a satisfied customer is scheduled. The salesman, prospect and home owner-host look over the installation together, then talk about it. However, the salesman never presses hard for the sale.

The prospect's visit to a previous job is just one of the company's ways of "using the user" to build that big recommendation business. When a satisfied customer compliments Mr. Ingham on a good job, the man is reminded to "tell your friends about us when they have a heating problem." After a job has been completed, the salesman calls back for a final inspection. Before he leaves, he asks the customer which of his neighbors might need the same type of work done in their homes.

The company's recommendation business soared recently when heavy rains caused flooded basements in the Chicago area it serves. For years the firm has followed the practice of asking about basement flood conditions before planning a heating installation. If previous flood conditions make it seem advisable, and if there is sufficient headroom, the furnace is placed on a base which may be as high as 30 in. Customers whose heating plants were unharmed during the recent high water conditions told friends about Aire-Flow's engineering practice of anticipating this type of situation.

#### **Sales Aids: FHA Loans, Showroom, Service**

The company finds that FHA Title I loans are another sales aid. "The interest rates and credit standards are no more favorable than in other financing," Mr. Ingham says. "The customer still pays 5 per cent on the balance, has to have a steady job and good credit. But it's easy to handle because the forms can be filled out in the home. Our salesman helps the customer fill out the application and note, then the papers are filed with our bank for approval. The whole job or any portion of it can be financed over a period as long as 36 months."

When the customer receives the FHA completion slip from the salesman, he is told that the firm can't get its money for the job until he signs the slip and sends it in. "Remember, that gives you the upper hand in seeing that we do the job we promised. Just exactly what you are supposed to get is specified in the contract and on the layout. Don't okay the job until it's perfect," he is told.

To prevent on-the-job changes not specified in the planning, a field foreman checks each job after it has been sold but before work starts. If any part of the specifications needs to be altered, the customer is told and must give his approval in advance.

"By being just as careful to keep the customer content after he signs the contract as before, we help our future recommendation business," Mr. Ingham says.

The company's modern showroom is one of its most important sales aids. Furnaces, air conditioning units, and hooked up, operating gas and oil burners are shown. More important than any specific product selling that can be done in the showroom, Mr. Ingham says, is the general feeling of confidence it helps build. It also helps

create sales leads which come from people who have passed by.

Mr. Ingham also rates the all-night repair service among his best sales assets. A telephone answering service takes calls at night and on weekends and relays them to the particular mechanic assigned to off-hours duty that week. When the man comes back from a call, he reports to the 'phone service and awaits the next call.

#### **Job Must Be Done Right**

"With all these advantages, we close a high proportion of sales, but we don't close them all," Mr. Ingham says. "Our biggest obstacle is the same as our biggest advantage: our insistence on doing the job the one right way.

"On a conversion job, we check the heating layout to see if a conversion unit alone will do the job. We also check the furnace to see if it's in good shape. If the system is inadequate to take the new equipment, we show the customer why. Instead of putting modern equipment into a system that was laid out 20 years ago, we'll bring the system up to 1954 operating standards, even if it calls for ripping out old grilles and patching floors.

"Of course, all this extra work has to be paid for; so we can't sell the man who is interested in price alone. In the great number of cases, our step-by-step explanation shows why the better job will be cheaper in the long run, and the customer appreciates that we've taken a chance with the sale for his benefit."

#### **Methods Have Stood the Test of Time**

Mr. Ingham's sales methods have stood up well through more than 30 years in the heating business. Starting out as a salesman for Landwehr Heating Corp., he led nationally in sales in his third year, won a new car and other prizes. Later, as a heating salesman in Philadelphia, he weathered the depression without a slump. He came to Chicago in 1938 and started building his own company, always delegating the details of the business to capable assistants so that he could go on selling. He trained his salesmen from the start in his own low-pressure "customer confidence" methods of selling, and all the men are using these methods with success.

"In addition to methods, salesmen have to be given incentives," Mr. Ingham says. He feels good compensation is basic. The company runs periodic sales contests to get the men to go out and make extra calls. Usually, individual quotas are set and the contest is run for a month. Attractive awards are given to anyone who exceeds his quota.

"That incentive for more effort is important, because any salesman will follow up live leads, but it's the cold canvassing that's the basis of our new business," Mr. Ingham asserts. "During 33 years of selling warm air heating and residential air conditioning, I've tried almost every known way of finding business. I still think ringing doorbells is the best."

# RESIDENTIAL AIR CONDITIONING

- In operating combination with the refrigerant, will the oil lubricate and seal in the compressor over the expected range of pressures and temperatures?
- Is its composition such that wax deposits in the expansion device or low temperature parts of the system will be avoided?
- Will it flow freely from low temperature parts of the system back to the compressor?
- Will it avoid forming corrosive acidic compounds which shorten the life of metals in the system?
- Is it free from a tendency to carbonize and form deposits when it contacts hot surfaces in the compressor?
- Does it have the low moisture content necessary for air conditioning service?
- Is it stable enough to avoid sludge formation after long service?

ANSWERS TO these fundamental questions show whether or not an oil is suitable for use in residential air conditioning systems

ONLY TWO things belong inside of a refrigerating system — refrigerant and oil. Last month we discussed some of the qualities which make a substance desirable as a refrigerant. Now we shall consider what the refrigeration and oil industries have learned about oil and its behavior in a refrigerating system for air conditioning.

Oil is an essential part of every compression type refrigerating system and is no less important to successful performance than are the various mechanical parts such as the compressor, condenser, evaporator or expansion device. Just as the mechanical parts are carefully designed or selected for the job which they are to perform, so must the oil be "designed" or selected for its job. Newly designed refrigerating systems must be just as thoroughly tested for the performance of the oil as

they are tested for the performance of the mechanical components. Oil put into a hermetically sealed system, for example, is intended to serve for the life of the system, which is considered to be a minimum of 10 years. The manufacturer would view a premature failure of the oil with no less concern than the failure of any other component due to poor design or insufficient testing.

## Performs Double Function

Oil is, of course, used in a refrigerating system to lubricate the moving parts of the compressor. An equally important though not quite so obvious function is to provide a seal in maintaining pressure differentials across the various moving parts of the compressor. Both of these functions are closely related to the compressor design and its appli-

By S. W. Reid  
Air Conditioning Engineer  
Gilbert Associates, Inc.

cation. Therefore, the selection of the proper oil is a fundamental responsibility of the compressor manufacturer.

## Deciding If It's Suitable

The problem of providing the proper lubricant for a refrigerant compressor is considerably more involved than, for example, selecting oil for a fan bearing or an electric motor. For the latter there are only a small number of variables to be considered, such as bearing clearances, bearing load, severity of duty, ambient temperatures, etc. For the compressor the problem is complicated at the start by the fact that the lubricant is not 100 per cent oil but a variable combination of oil and refrigerant, which in some cases is a solution and in other cases a mixture.

A number of fundamental ques-

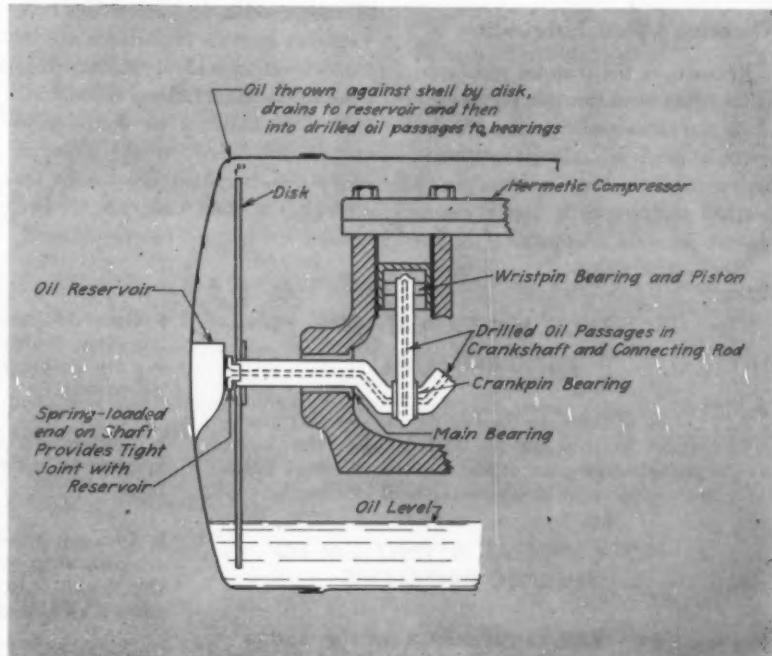
# HOW

# Home Cooling Systems Are Lubricated

**Oil is selected on the basis of its volatility, moisture content and other features, and is distributed by the method (splash, flood or forced feed) best suited to the application**

tions (shown in the accompanying box) can be asked about an oil to determine its suitability for use in air conditioning.

Answers to many of these questions can be found by means of laboratory tests which determine the various characteristics and properties of the oil. In practice, however, only the experience of long term testing in an actual system can establish the complete suitability of an oil. Such a test might be run for a period of several years during which the system is checked regularly for efficiency under severe conditions of operation. At the conclusion of the test, the compressor and various other parts of the system are examined for evidence relating to the performance of the lubricant. A comparison might be made with other identical systems run simultaneously with other types of oil.



THE FLOODED SYSTEM method is generally used to lubricate large size fractionals and smaller sized integral horsepower compressors

## Oils To Meet Requirements

The types of crude oil used for refrigeration service are those with a naphthenic base and those with a paraffinic base. The former have been used almost universally until recently. The hermetically sealed unit in which motor heat can drive oil temperatures up to 225 F or higher has put very stringent demands upon the lubricant as compared with open type compressors where oil temperatures seldom exceed 120 F. The increasing importance of greater chemical stability and lower solvent power has led to improved refinement procedures and also to the use of certain additives which result in oils of both types which meet today's demands. The paraffinic base oils are particularly compatible with the additives. The preference of authorities varies.

There are, of course, some general indices to oil suitability — whatever the base — which can be inferred from the specific questions previously mentioned. These include such characteristics as viscosity, pour and cloud points, volatility, moisture content, chemical stability and mutual solubility with refrigerants.

## Viscosity Affects Lubrication

Viscosity is the internal resistance of the oil to flow. It might be thought of as thickness or stickiness. If the viscosity is too low, the oil might not have sufficient body to stay in a bearing or to properly seal a piston against pressure. Actually, it is the

viscosity of the refrigerant-oil mixture that is important. The proper viscosity must be chosen by test. It is usually the lowest that will provide proper sealing, as this requirement seems to be more difficult to fulfill than is the requirement of proper lubrication.

## Wax As a Problem

The pour and cloud points of an oil have to do with its wax content. For air conditioning applications these properties are of little significance. For low temperature systems, however, wax can be a serious problem, for it condenses from solution and clogs expansion valves or coats evaporators. Generally speaking, the naphthenic base oils have much lower pour points than have the paraffinic oils. For this reason the former are used almost exclusively for low temperature applications.

## Oil Must Not Be Too Volatile

Knowledge of the volatility of an oil at the maximum discharge temperature and pressure is important, since it is not desirable to have the lubricant vaporize when it is most needed to serve its normal function. Volatility assumes importance also in the evacuation and drying which is done in the manufacture of hermetic units. It would not be desirable to use an oil which would vaporize under this condition because of the difficulty of achieving the desired vacuum at the time of evacuation.

## Moisture Content Should Be Low

The moisture content of oil must be low for several important reasons. One is, of course, the possibility of the water freezing under certain conditions of operation at the expansion device. Ice blocks the refrigerant passage and results in eventual failure of system performance. A second effect of moisture is the part it plays in destructive chemical reactions within the system. It is a factor in the formation of acids which attack metals — especially copper.

## Effect of Copper Plating

A rather interesting condition known as copper plating results from the interaction of refrigerant-oil mixtures with copper. Because of its serious nature, a good deal of study has been given to the problem to discover the cause and cure. Copper is apparently dissolved from the copper parts of the system (usually the tubing, but also the hermetic motor) and deposited elsewhere in the system. The deposition usually is found on polished steel bearing surfaces where, if sufficient, it can reduce bearing tolerances to the point of damage.

Experiments have not relieved either the oil or the refrigerant from the responsibility for copper plating. The type of oil is known to be a contributing factor since the phenomenon occurs more readily with some oils than with others. The refrigerant has been shown fairly recently

## FIRST WE EXPLAINED FUNDAMENTALS

... in Mr. Reid's series of 20 articles (concluded in the May, 1954 issue). The basic operating characteristics of residential cooling equipment were described in detail.

## NOW SPECIAL ATTENTION TO SPECIFIC PROBLEMS

... in a new series based on the author's wide experience in the field. Sample articles:

► How dealers can train personnel — service men, installers, dispatchers, clerical help — in enlarging their air conditioning departments

► Converting an existing gravity warm air system to a residential air conditioning system

► Typical home owner "complaints" about conditioning equipment, how to diagnose the trouble in each case and carry out the repair required

► Zoning residential air conditioning (special problems, instructing home owner, etc.)

to be a factor by the discovery that certain products of its decomposition occur in the deposits. The amount of moisture in the system seems to be an important factor in the reaction of both the oil and the refrigerant. The best advice today is that copper plating is not serious provided the moisture level of the system is kept low enough both during manufacture and field servicing.

#### Must Resist Oxidation, Heat

In addition to the requirement that a refrigeration oil be chemically stable with respect to the refrigerant, it must also resist the effects of oxidation and heat. The latter requirement applies more to smaller systems of the hermetically sealed type, whereas the former is of more importance in larger systems where the oil is handled more openly and frequently.

The hermetically sealed compressor, as mentioned earlier, operates with high oil temperatures due to the heat dissipated by the sealed motor. Where these compressors are incorporated in systems with air cooled condensers, discharge temperatures are necessarily high, imposing the most severe conditions on the oil with respect to heat resistance. Oils which are not suited for high temperatures will tend to break down. This results in the formation of gum and varnish deposits on the cylinder walls and sludge in the crankcase. Both conditions accelerate compressor wear.

#### Foaming Useful in Moderation

When oil is mixed with certain refrigerants, there is mutual solubility. Some refrigerants will mix with oil in all proportions throughout the range of operating temperatures. Other refrigerants will mix

**"... too high an oil level will tend to increase the quantity of oil circulated"**

with oil under certain conditions but under others (depending upon the temperature, pressure and base stock of the oil) will separate into two phases.

The amount of refrigerant dissolved in a given oil is a function of temperature and pressure. Thus, oil in a compressor crankcase under standby (shutdown) conditions will have dissolved in it a certain amount of refrigerant. When the compressor starts, the crankcase pressure will drop (since it is open to the suction side of the compressor). The reduction in pressure causes dissolved refrigerant to leave, since the oil can no longer retain as much. As this happens, the oil will foam and froth, perhaps to such an extent that most of it may actually leave the crankcase and enter the system. If it does not return quickly, the compressor may be damaged. Foaming on start-up is a normal condition, but it must be watched in a new system (by the manufacturer in the case of packaged units) and corrected by means of an oil separator, valves, or system adjustments if there is any indication of a possible compressor failure due to lack of lubrication. With forced feed systems, an oil pressure failure switch is used to stop the compressor in case there is no oil pressure.

There has been a lot of discussion recently about the use of anti-foaming additives in oil. Studies have been made which show that a certain amount of foaming is desirable in aiding the distribution of oil to areas that need lubrication. Abnormal foaming has been traced to

abnormal conditions caused by improper adjustment or design. Anti-foaming agents are usually recommended only as a temporary measure.

#### Putting Oil Where It's Needed

We pointed out earlier that oil has two functions in the compressor — lubrication and sealing. In a reciprocating compressor lubrication is needed for the main bearings which carry the crankshaft, for the crankpin bearings which carry the lower ends of the connecting rods and for the wristpin bearings at the upper ends of the connecting rods. Sealing as well as lubrication is needed around the pistons and, in open-type compressors, around the shaft seal.

There are three basic methods used for getting the oil to the places where it is needed. These are the splash method, the flooded system method and the forced feed method.

#### Splash Method Simple

The splash method is simple and is used principally in the fractional horsepower sizes. In the design of the compressor the crankcase oil level is established high enough for the crank to dip into it on each revolution and to splash a sufficient amount of oil spray to the bearings and cylinder walls. The level must not be too high or the agitation will be so violent that foreign matter which may accumulate from the system will not have a chance to settle to the bottom of the crankcase where it will do no harm. Furthermore, excessive agitation caused by too high an oil level will tend to increase the amount of oil carried over to the system past the pistons. This is not particularly harmful in a small system where oil can return quickly, but it may create a problem when parts of the system are remote from the

**"... oil has two functions in an air conditioning system; lubrication — sealing"**

compressor so that the oil cannot return readily.

Splash lubricated compressors, of course, have large bearing clearances to permit the oil to enter freely. This and the splashing action itself must be considered from the aspect of noise.

### How Flooded System Works

Flooded system lubrication can be accomplished in a variety of ways. A typical means for distributing oil by this method is shown in the accompanying diagram. Oil is lifted from the crankcase by the disk which rotates with the crankshaft. The disk throws it against the hermetic shell. From the shell walls, some of it drains into the small reservoir at the end of the crankshaft. The crankshaft and connecting rods are drilled, and the bearings are grooved. Due to the slight pressure created by the centrifugal force of the rotating shaft, oil flows from the reservoir outward toward the bearings.

In the flooded system method, agitation of the oil in the crankcase is held to a minimum. This reduces noise and the tendency for oil pumping. This method is used in the large sized fractionals and in the smaller sized integral horsepower compressors such as those used in packaged air conditioners.

### Forced Feed System Explained

The third method of distributing oil in a compressor employs a pump, usually driven by the end of the crankshaft opposite the shaft seal. The use of forced feed lubrication for larger compressors allows bearing clearances to be small, resulting in quiet operation.

Oil lines from the pump may be either inside or outside of the compressor body. Oil is delivered to the cylinder walls and shaft seal as well as to the bearings. The pressure developed is frequently used to operate cylinder unloading systems for reducing the compressor starting load and capacity as may be required.

### Oil Must Return Constantly

Regardless of what method of oil distribution is used, some oil is always circulated through the system with the refrigerant. The amount may vary from 1 or 2 per cent of the refrigerant in a well designed compressor up to possibly 10 per cent in other designs. Because the oil is vital to compressor operation, the system must be designed so that it can return oil constantly. Little difficulty is encountered with oil in air

conditioning condensers or evaporators in small, compact systems, especially if the gas velocity in the latter is kept above 1200 fpm.

Oil returning from the system must get back from the suction line to the crankcase. Provision must be made, therefore, in the compressor suction chamber for the separation of oil from the returning vapor.

Although the dealer is not often called upon to select an oil for a refrigerating system or to set up the method for its distribution, he should realize that proper selection and functioning of oil are no less important to a given air conditioning system than proper selection and functioning of any other component. The best source of information on what oils should be used and where, can be obtained from the condensing unit manufacturer.

## Steeple Provide Job Opportunities



THE COPPER SHEATHED steeple of the Central Presbyterian Church of St. Paul, Minn. was originally erected in 1889 and until recently required only minor repairs. However, the supporting members had deteriorated to such an extent that it was felt the steeple should be reconstructed.

The copper work was replaced by Scribner-Libbey Roofing Co. who used 32 oz sheets to fabricate the finial and ridge trim. The circular windows and hips were done in 16 oz copper.

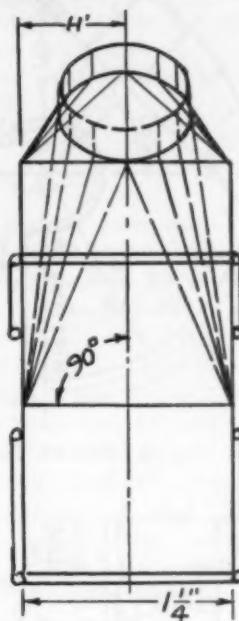
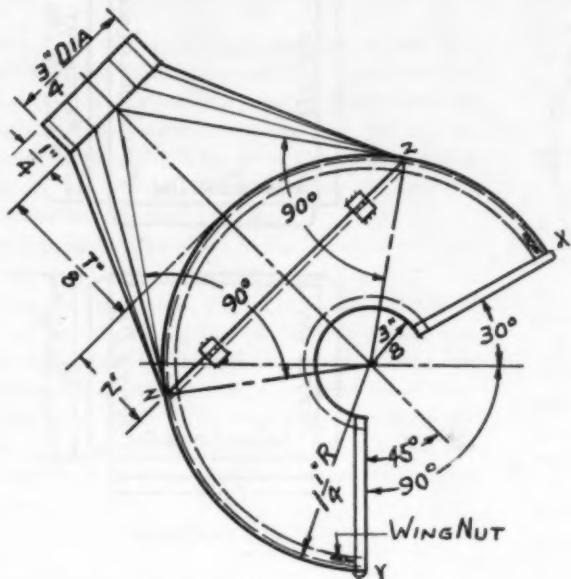
John Gill, president of the company, believes that churches throughout the country will soon be in need of such sheet metal repair work in the near future.

## Encourage Employees to Make Decisions

THE NATIONAL Foremen's Institute points out that "it isn't a man's mistakes that make him a failure; it's his refusal to take any more to make decisions without

chances on making a mistake again." The institute recommends that employees at all levels should be encouraged to make decisions on the job whenever possible, by using their anxiety. "This can only be done," it says, "if supervisors permit employees to make decisions on the job whenever possible, by using their errors to point the way to develop better judgment in the future, and by giving them every possible encouragement to take on minor decisions."

## HUGH REID'S SHEET METAL PATTERN



1 FRONT VIEW and . . . . . 2 END VIEW of the fitting. The front pattern provides for a hinged service door

## Making a Polishing Wheel

### Guard and Hood

ALL MACHINERY that creates dust, fumes or refuse in quantities which might tend to injure the health of those nearby should be equipped with hoods and duct systems connected to an exhaust fan of sufficient capacity and power to remove such materials and odors. The fan should be kept running constantly with the system in full operation while the machinery is in use.

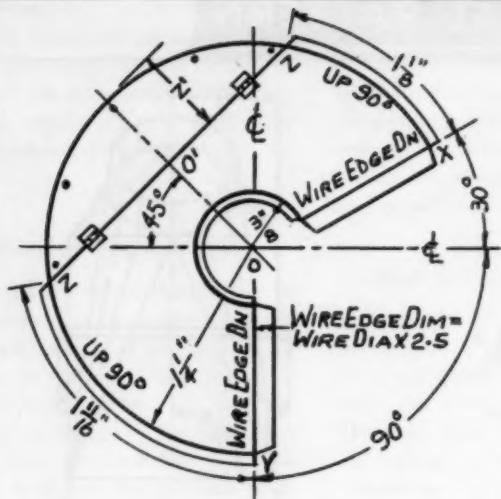
Grinding and polishing wheels, of course, come under the category of machinery requiring hoods. The minimum air volume requirements for these wheels can be obtained from the current issue of the *Heating, Ventilating, Air Conditioning Guide* published by The American Society of Heating and Ventilating Engineers.

In the design of hoods, it is desirable to keep the open-

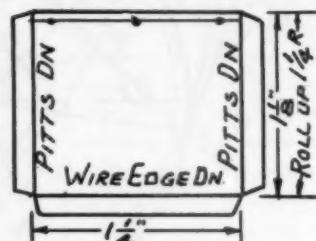
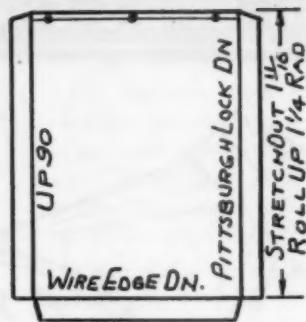
ing as small as possible; this maintains the velocity at a maximum, which will prevent the escape of material from the hood. When the hood is oversize, the cross-sectional area is correspondingly large, resulting in a velocity drop through the opening.

Exhaust hoods should be constructed of heavy materials. This applies particularly to systems where abrasive materials are being collected. A hinged service door is required to allow replacement of worn polishing wheels. The hood should be shaped to receive the material being thrown from the buffing wheel.

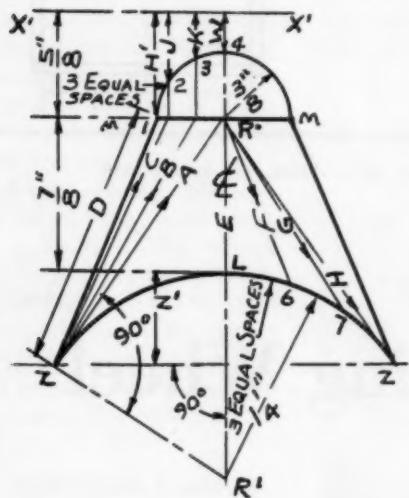
The following is a step by step solution to the pattern development problem—a combination guard and dust collecting hood for a polishing wheel.



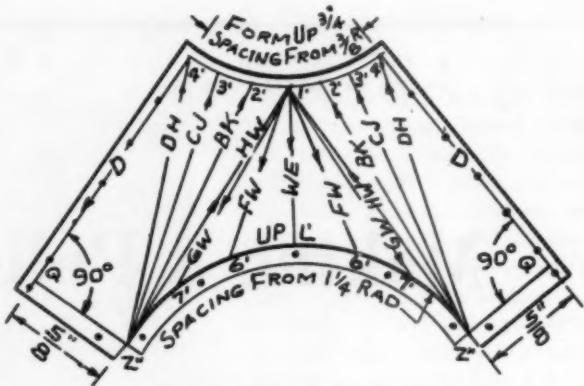
3 SIDE PATTERN



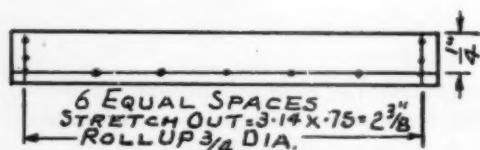
4 RIM PATTERNS



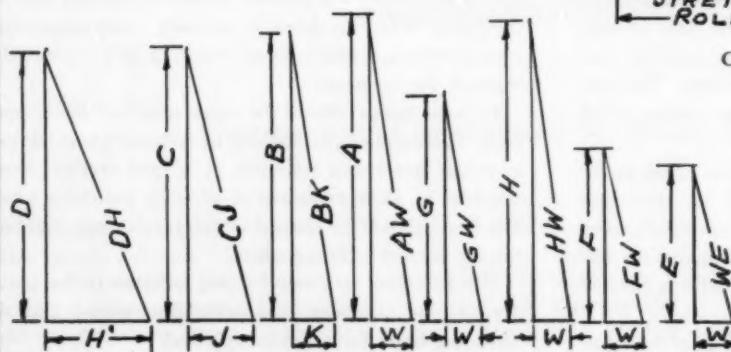
5 SIMPLIFIED LAYOUT of the exhaust connection fitting



6 HALF PATTERN of the exhaust fitting



COLLAR PATTERN



TRUE LENGTH LINES

### For Side Pattern, Fig. 3 —

- a) Draw the horizontal and vertical center lines marked CL and mark the intersection point O. From point O as center and with a radius of  $1\frac{1}{4}$  in., draw a circle.
- b) From point O draw a line to the right of and at a 30 deg angle to the horizontal center line to intersect the  $1\frac{1}{4}$  in. radius circle. Mark this point X. Mark the lower intersection of the vertical center line and the  $1\frac{1}{4}$  in. radius circle as point Y. With point O as center and a radius of  $\frac{3}{8}$  in., draw a 240 deg arc to intersect the vertical center line and the 30 deg line.
- c) From point O draw a line to the left of, above, and at a 45 deg angle to the horizontal center line.

d) From the front view, Fig. 1, transfer distance Z' (17/32 in.) to this 45 deg line on the side pattern and mark the end point O'. Through this point draw a line perpendicular to the 45 deg line to intersect the circumference line at points Z. (The front pattern contains the provision for a hinged door to be set on line Z-Z; the back pattern will be formed without a provision for a service door.)

### For Rim Patterns, Fig. 4 —

- a) From the front pattern, Fig. 1, measure the arc X-Z, which is  $1\frac{1}{8}$  in. The end view of the guard, Fig. 2, shows that the width of the fitting will be  $1\frac{1}{4}$  in. Draw a rectangle  $1\frac{1}{4} \times 1\frac{1}{8}$  in.
- b) On Fig. 1, measure the arc distance Z-Y, which is  $1\frac{11}{16}$  in. Draw a rectangle  $1\frac{1}{4} \times 1\frac{11}{16}$  in. Add allowances for flanges, Pittsburgh lock seams and wire edges, and locate and punch the rivet holes.

### For Simplified Method Drawing, Fig. 5 —

- a) Draw the vertical line marked CL and establish the point R' at the bottom of that line. From R' measure  $1\frac{1}{4}$  in. and mark the point L. With R'-L as radius and point R' as center, draw a long arc.
- b) From point L, measure  $\frac{7}{8}$  in. up the center line and mark the point R''. Draw a horizontal line extending to the right and left of point R'' for a distance of  $\frac{5}{8}$  in. Mark this line M-M. From line M-M measure  $\frac{5}{8}$  in. upward and draw a parallel horizontal line; designate this line X'-X'. (The  $\frac{5}{8}$  in. dimension is taken from the half width distance marked H on the end view, Fig. 2.)
- c) With R'' as center and a radius of  $\frac{5}{8}$  in., draw a half circle above point R''. Using the left half of the newly formed half circle, divide the quarter circle into three equal spaces. Mark the division points 1, 2, 3 and 4, and through the points draw extended lines to intersect line M-M and line X'-X'.
- d) Mark the distances from the equally spaced points on the quarter circle to line X'-X' as H', J, K and W.
- e) To locate point Z on the circle circumference line, draw a line from point R'' tangent to the  $1\frac{1}{4}$  in. arc.

Mark this line A. From radius point R' draw a line perpendicular to line A to intersect the arc at point Z, this forms a 45 deg angle.

f) From Z draw lines B, C and D to intersect the equally spaced projection points on line M-M. Divide the  $1\frac{1}{4}$  in. arc LZ (to the right of point L) into three equal spaces and from point R'' draw the work lines marked E, F, G and H.

### For Half Pattern, Fig. 6 —

a) Draw a right angle; transfer length E and fall distance W, Fig. 5, to the horizontal and vertical legs of the right angle. The hypotenuse WE is the developed line. Draw a vertical line equal in length to WE and mark the ends L' and I'.

b) Transfer lines F and G, Fig. 5, to the vertical legs of right angles and fall distance W, Fig. 5, to the horizontal legs. The hypotenuse lines FW and GW are the true length lines. With these lines as radii and point I' on the pattern as center, draw arcs on both sides of line WE. With the equal space distance L-6, Fig. 5, as radius and point L', Fig. 6, as center, cut the arcs FW and mark the points 6'. With equal space distance 6-7, Fig. 5, as radius and points 6', Fig. 6, as centers, cut the arcs GW and mark the points 7'.

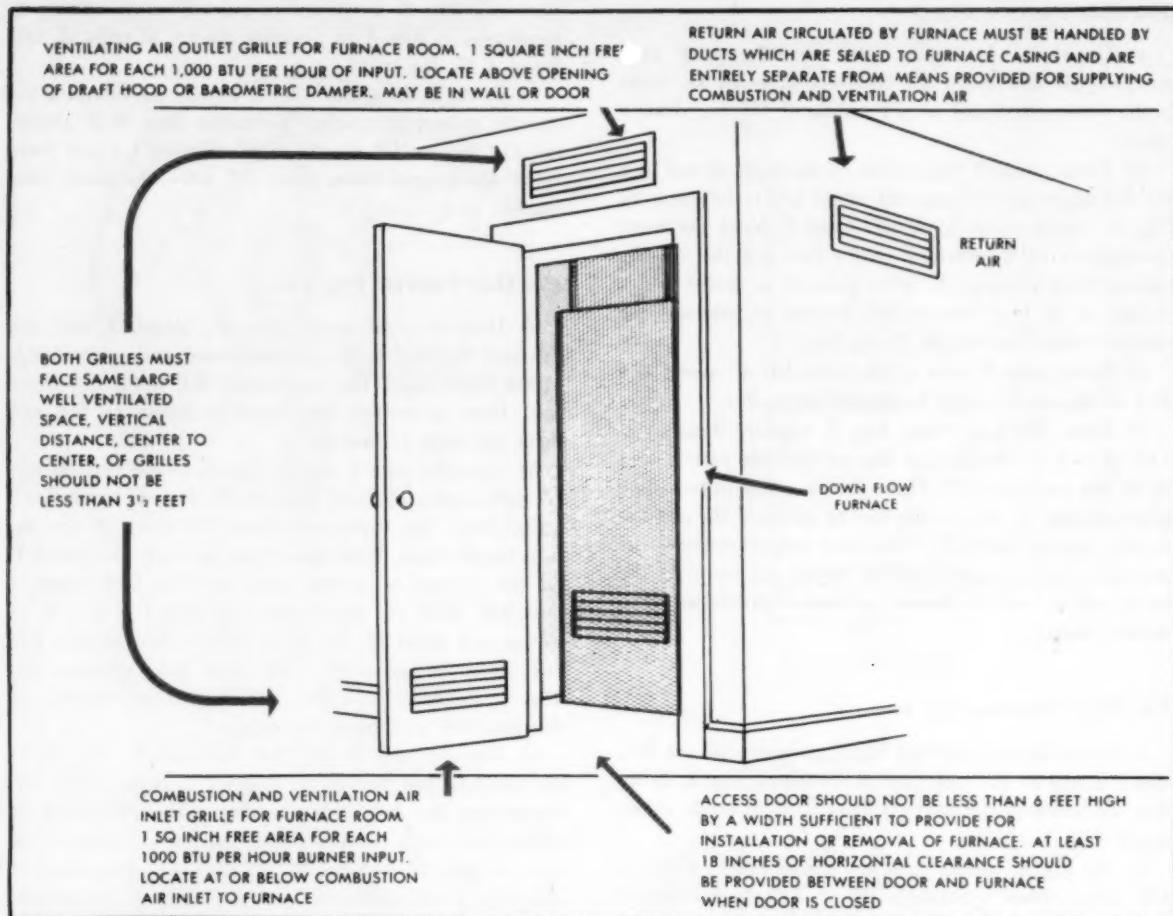
c) Transfer line H and fall distance W, Fig. 5, to the vertical and horizontal legs of a right angle; the hypotenuse line HW is the developed line. With HW as radius and point I' on the half pattern as center, draw arcs on both sides of line WE. With equal space distance 7-Z, Fig. 5, as radius and points 7', Fig. 6, as centers, cut the arcs HW and mark the points Z'.

d) Transfer length B, Fig. 5, to the vertical leg of a right angle and fall distance K, Fig. 5, to the horizontal leg. The hypotenuse BK is the true length line. With points Z'', Fig. 6, as centers and radius BK, draw arcs on both sides of point I'. With equal space distance 1-2, Fig. 5, on the  $\frac{3}{8}$  in. arc as radius and point 1', Fig. 6, as center, cut the arcs BK and mark the points 2'.

e) Transfer lines C and D, Fig. 5, to the vertical legs of right angles and fall distances J and H' to the horizontal legs. The hypotenuse lines CJ and DH are true length lines. With CJ as radius and points Z'' as centers, draw arcs on both sides of point I'. With equal space 2-3, Fig. 5, as radius and points 2', Fig. 6, as centers, cut the arcs CJ and mark the points 3'. With true length line DH as radius and points Z'' as centers, draw arcs on both sides of point I'. With equal space 3-4, Fig. 5, as radius and points 3', Fig. 6 as centers, cut the arcs DH and mark the points 4'.

f) With line D, Fig. 5, as radius and points 4', Fig. 6, as centers, draw arcs. With half width length  $\frac{5}{8}$  in., Fig. 2, as radius and points Z'', Fig. 6, as centers, cut the arcs D and mark the points Q.

g) Through the developed points draw the pattern outline, add necessary allowances and mark the patterns for fabrication.



INSTALLATION RECOMMENDATIONS are from the NWAHACA's Manuals 4 and 10

## Providing Ventilation, Combustion Air for Confined Heating Units

... installed in closets or  
small utility rooms. Essential for safety —  
two permanent openings for this purpose

AS A MEANS of increasing the living area in houses without increasing outside dimensions or costs, architects and builders have been reducing to a minimum the space allotted for installation of the heating unit. In fact, in many cases the heating equipment is located either in small confined utility rooms or in heater closets. Modern winter air conditioning units make this type of installation possible. However, when heating equipment is located in small closets, certain problems are created that are not normally encountered in homes where the units can be installed in basements.

One of these problems concerns the introduction of sufficient air for proper combustion and ventilation of the heater room.

If insufficient air is supplied, improper combustion and overheating of the heater closet will occur. This is dramatically illustrated in one of the houses investigated during the 1951-52 heating season by the National Warm Air Heating and Air Conditioning Association's field investigation committee. In this home, a single 12 x 6 in. grille was located in the furnace closet door about 4 in. above the floor. This grille was supposed to supply all of the required air needed for combustion and the air required to ventilate the space containing the heating equipment. No other openings were provided in the area.

#### High Temperatures Recorded

A study of air temperatures in the furnace closet indicated that on a day when the outdoor temperature was 39 F, the closet air temperature was 164 F at a point within 3 in. of the ceiling. At the 5 ft level, the temperature was 134 F. These readings were taken when the burner had operated only eight minutes and the blower had started three minutes after the burner. The temperatures had not stabilized at the end of the eight minute operating period and undoubtedly would have been higher with a prolonged operation as might occur during a morning pick-up period.

The overheated condition in this

closet was in part attributed to insufficient air flow through the furnace, since the bonnet temperature was recorded at 208 F. This was partly due to the excessive resistance in the return air side of the system. To determine what the temperature would have been had adequate ventilation been provided and if the resistance of the distribution system had not exceeded the capacity of the blower, the service man disconnected the return air duct and removed the door of the blower compartment so that air could short circuit through the closet space. It was found that the air flow through the system was increased substantially and at the same time the ceiling air temperature was reduced to 110 F — 54 F less than that of the original test. (It is emphasized that the disconnected return is not an acceptable solution to the problem. In this case it was done only during the testing procedure and under constant observation to prove that if the system had been designed for the static pressure the blower could overcome, and had an adequate supply of air for ventilation been provided to the closet, overheating would not have occurred.)

In another house investigated, the furnace closet was equipped with a solid sliding steel door installed as a fire stop. No provisions were made for the introduction of air for combustion or ventilation of the space. Dangerously high temperatures were recorded in the closet and the field investigation committee reported indications of improper combustion. It was found that the only safe way this system could be operated was to keep the steel door open continuously.

In both of these homes and in others investigated, the lack of proper provisions for air combustion and space ventilation presented definite fire hazards. In no respect did these installations comply with the recommendations prepared by the National Board of Fire Underwriters. These recommendations are included in manuals published by NWAHACA.



LOUVERED DOORS can be used to provide sufficient combustion and ventilation air

#### Permanent Openings Needed

These manuals recommend that when a furnace is installed in a utility room or some other confined space, air for combustion and ventilation should be supplied through two permanent openings to a well ventilated interior room. These openings should be placed one above the other with a minimum vertical distance between their center lines of 3 1/2 ft. These openings may be equipped with suitable grilles or louvers. This arrangement is shown in the accompanying illustration.

The lower opening supplies both ventilation and combustion air and should be located beneath the combustion air inlet of the burner. The upper opening is for ventilation purposes only and should be above the level of the relief opening of the draft diverter or barometric damper. Both of these openings must provide a minimum of 1 sq in. of free area for each 1000 Btu per hr of burner input or the free area specified by the manufacturer of the heating unit being used. The openings must never be blocked by furniture or other household equipment.

Material and illustrations are from a recent bulletin of the National Warm Air Heating and Air Conditioning Association.

# Housing Census Heating Data

Davenport • Duluth • Lexington • Montgomery, Ala. • New Haven • Utica

SUGGESTIONS on how a warm air heating dealer can use some of the housing data available from the Bureau of Census were given in the May 1953 American Artisan. Localities covered in the reports are metropolitan

areas that are socially and economically integrated with the central city. Data for various areas has been reported regularly in American Artisan since May 1953. Additional reports will continue to appear regularly.

## Types of Fuel Used in Centrally Heated Dwelling Units

	Standard Metropolitan Areas											Utica N.Y.
	Davenport Iowa		Duluth Minn.		Lexington Ky.		Mont- gomery Ala.		New Haven Conn.			
	The area	Scott County	Rock Island County, Ill.	The area	St. Louis County	Douglas County, Wis.	Fayette County	Montgomery County	New Haven (Part)	The area	Herkimer County	Oneida County
All dwelling units	70,326	30,094	40,232	84,901	69,414	13,487	27,905	40,459	77,482	86,149	20,997	66,052
Number reporting heating equipment	67,975	28,840	39,135	74,755	61,100	13,655	26,600	37,140	74,025	79,215	17,780	61,435
Central heating	52,615	22,120	30,495	47,530	40,170	7,360	11,060	9,210	53,940	57,930	12,145	45,785
Coal	37,510	16,010	21,500	31,290	25,490	5,800	3,225	625	18,500	37,320	7,855	29,465
Wood	170	80	90	925	745	180	25	20	175	530	130	400
Utility gas	9,200	3,870	5,330	3,270	2,860	410	7,440	8,295	6,355	3,145	255	2,890
Bottled gas	260	115	145	195	170	25	40	70	215	265	55	210
Liquid fuel	4,820	1,695	3,125	7,850	7,025	825	185	75	26,770	15,620	3,430	12,190
Other fuel	425	280	145	3,585	3,530	55	105	100	1,360	775	350	425
Not reporting	230	70	160	415	350	65	40	25	565	275	70	205

## Types of Nonfarm Dwelling Units, by Type of Heating and Year Built

	Total occupied					Owner occupied			Renter occupied						
	Total	1 dwelling unit, detached	Other 1, and 2 dwelling unit	3 and 4 dwelling unit	5 to 9 dwelling unit	10 dwelling unit or more	Total	1 dwelling unit, detached	All other dwelling units	Total	1 dwelling unit, detached	Other 1, and 2 dwelling unit	3 and 4 dwelling unit	5 to 9 dwelling unit	10 dwelling unit or more

### Standard Metropolitan Area of Davenport, Ia. — Scott County, Ia., also Rock Island County, Ill.

All occupied units	62,425	40,830	11,535	5,065	3,220	1,755	37,450	32,665	4,785	24,975	8,165	7,715	4,365	3,010	1,720
<b>HEATING EQUIPMENT</b>															
Central heating	47,931	30,488	9,190	3,767	2,825	1,661	29,754	25,759	3,995	18,177	4,729	5,919	3,242	2,662	1,625
Piped steam or hot water	9,889	3,796	1,685	1,222	1,782	1,404	3,835	3,054	781	6,034	742	1,140	1,144	1,642	1,386
Warm air furnace	38,042	26,692	7,505	2,545	1,043	237	25,919	22,705	3,214	12,123	3,987	4,779	2,098	1,020	239
Noncentral heating, with flue	12,159	8,860	1,915	1,113	247	24	6,340	5,997	543	5,619	2,863	1,512	996	224	24
Nonctrl. htng., without flue; or not htd.	1,143	742	232	100	25	24	687	487	200	456	255	110	42	25	24
Not reported	1,193	738	199	85	123	48	467	420	47	726	318	175	85	100	48
<b>YEAR BUILT</b>															
1945 or later	7,049	6,557	238	165	69	...	6,021	5,970	51	1,028	587	207	165	69	...
1940 to 1944	4,554	3,955	207	82	255	55	3,618	3,392	26	936	363	181	82	255	55
1939 or earlier	49,476	29,419	10,935	4,736	2,803	1,583	27,107	22,485	4,622	22,369	6,934	7,223	4,036	2,593	1,583
Not reported	1,312	900	155	82	93	82	671	620	51	641	280	104	82	93	82

### Standard Metropolitan Area of Duluth, Minn. — St. Louis County, Minn., also Douglas County, Wis.

All occupied units	66,175	41,680	12,305	5,435	3,900	2,855	41,725	35,390	6,335	24,450	6,290	7,445	4,385	3,555	2,775
<b>HEATING EQUIPMENT</b>															
Central heating	43,521	26,012	7,999	3,599	3,212	2,699	27,934	23,404	4,530	15,587	2,608	4,475	2,977	2,896	2,631
Piped steam or hot water	21,847	9,488	4,279	2,840	2,679	2,561	10,591	8,079	2,512	11,256	1,409	2,517	2,354	2,449	2,527
Warm air furnace	21,674	16,524	3,720	739	533	138	17,343	15,325	2,018	4,331	1,199	1,958	623	447	104
Noncentral heating, with flue	19,274	13,415	3,707	1,554	494	104	11,842	10,407	1,435	7,432	3,008	2,603	1,223	494	104
Nonctrl. htng., without flue; or not htd.	2,585	1,714	471	282	118	...	1,518	1,251	267	1,067	463	301	183	118	...
Not reported	796	539	129	...	76	52	433	329	104	363	210	65	...	47	41
<b>YEAR BUILT</b>															
1945 or later	4,890	4,306	162	51	283	88	3,752	3,674	78	1,138	632	84	51	283	88
1940 to 1944	2,859	2,354	247	26	232	...	2,212	2,134	78	647	220	169	26	232	...
1939 or earlier	56,877	34,095	11,649	5,171	3,333	2,629	34,974	28,987	5,987	21,905	5,108	7,024	4,154	2,988	2,629
Not reported	1,468	924	247	187	52	58	705	594	111	763	330	169	154	52	58

**Types of Nonfarm Dwelling Units, by Type of Heating and Year Built**

	Total	Total occupied					Owner occupied					Renter occupied				
		1 dwelling unit, detached	Other 1, and 2 dwelling unit	3 and 4 dwelling unit	5 to 9 dwelling unit	10 dwelling unit or more	Total	1 dwelling unit, detached	All other dwelling units	Total	1 dwelling unit, detached	Other 1, and 2 dwelling unit	3 and 4 dwelling unit	5 to 9 dwelling unit	10 dwelling unit or more	

**Standard Metropolitan Area of Lexington, Ky. — Fayette County**

All occupied units .....	24,765	16,040	4,455	2,280	1,475	515	12,065	10,570	1,495	12,700	5,470	3,330	1,970	1,415	515
<b>HEATING EQUIPMENT</b>															
Central heating .....	9,836	6,493	1,546	657	790	350	6,223	5,437	786	3,613	1,056	960	487	760	350
Piped steam or hot water .....	2,892	1,109	501	366	607	309	1,001	773	228	1,891	336	388	281	377	309
Warm air furnace .....	6,944	5,384	1,045	291	183	41	5,222	4,664	558	1,722	720	572	206	183	41
Noncentral heating, with flue .....	10,575	7,367	1,899	788	397	124	4,498	3,984	514	6,077	3,383	1,471	732	367	124
Nonctrl. hting., without flue; or not htd. ....	3,585	1,732	889	713	210	41	1,013	844	169	2,572	888	776	657	210	41
Not reported .....	773	449	123	122	79	...	333	305	28	440	144	123	94	79	...
<b>YEAR BUILT</b>															
1945 or later .....	3,113	2,472	452	162	...	27	2,050	1,898	132	1,063	574	300	162	...	27
1940 to 1944 .....	1,296	900	313	...	83	...	913	791	122	383	109	191	...	83	...
1939 or earlier .....	19,896	12,427	3,605	2,047	1,329	488	8,897	7,750	1,147	10,999	4,677	2,784	1,781	1,269	488
Not reported .....	459	241	85	71	62	...	206	132	74	253	109	55	27	62	...

**Standard Metropolitan Area of Montgomery, Ala. — Montgomery County**

All occupied units .....	32,705	17,535	7,960	3,755	2,555	880	13,140	11,145	1,995	19,565	6,410	6,330	3,480	2,465	860
<b>HEATING EQUIPMENT</b>															
Central heating .....	8,452	4,040	1,578	1,540	845	449	3,992	3,447	545	4,460	593	1,150	1,456	822	439
Piped steam or hot water .....	1,161	292	168	317	183	201	278	224	54	883	68	168	296	160	191
Warm air furnace .....	7,291	3,748	1,410	1,223	662	248	3,714	3,223	491	3,577	525	982	1,160	662	248
Noncentral heating, with flue .....	12,571	7,232	3,498	832	913	96	4,036	3,491	545	8,535	3,741	2,995	790	913	96
Nonctrl. hting., without flue; or not htd. ....	11,328	5,990	2,833	1,382	798	325	4,873	4,028	845	6,455	1,962	2,204	1,234	730	325
Not reported .....	353	293	50	...	...	10	239	179	60	114	114	...	...	...	...
<b>YEAR BUILT</b>															
1945 or later .....	6,925	3,331	1,195	918	775	706	2,850	2,520	330	4,075	811	922	884	752	706
1940 to 1944 .....	2,489	1,388	266	276	493	66	1,069	1,008	61	1,420	380	205	276	493	66
1939 or earlier .....	22,759	12,561	6,371	2,478	1,261	88	8,978	7,393	1,585	13,781	5,168	5,095	2,237	1,193	88
Not reported .....	512	275	128	83	26	...	224	224	...	288	51	128	83	26	...

**Standard Metropolitan Area of New Haven, Conn. — New Haven County (Part)**

All occupied units .....	72,895	26,115	19,805	15,460	6,430	5,085	33,620	22,460	11,160	39,275	3,655	12,185	12,235	6,155	5,045
<b>HEATING EQUIPMENT</b>															
Central heating .....	51,923	22,556	13,243	9,339	2,818	3,967	28,337	19,989	8,348	23,586	2,567	7,365	6,858	2,649	3,947
Piped steam or hot water .....	32,274	13,571	7,396	5,451	2,100	3,756	17,101	12,277	4,824	15,173	1,294	4,251	3,940	1,932	3,736
Warm air furnace .....	19,649	9,985	5,847	3,888	718	211	11,236	7,712	3,524	8,413	1,273	3,314	2,918	697	211
Noncentral heating, with flue .....	15,428	2,391	5,076	4,545	2,635	781	3,858	1,754	2,084	11,590	637	3,641	3,981	2,550	781
Nonctrl. hting., without flue; or not htd. ....	3,705	547	970	1,200	798	190	961	444	517	2,744	103	632	1,042	777	190
Not reported .....	1,845	624	518	377	179	147	487	275	212	1,358	349	349	334	179	127
<b>YEAR BUILT</b>															
1945 or later .....	5,397	3,977	579	247	430	164	3,731	3,624	107	1,666	353	497	247	405	164
1940 to 1944 .....	3,218	2,366	471	55	162	164	2,238	2,238	...	980	128	471	55	162	164
1939 or earlier .....	61,551	19,059	18,021	14,746	5,649	4,076	27,090	16,174	10,916	34,461	2,885	10,591	11,550	5,399	4,036
Not reported .....	2,736	715	737	413	189	682	564	426	138	2,172	289	628	384	189	682

**Standard Metropolitan Area, N.Y. — Herkimer and Oneida Counties**

All occupied units .....	70,735	31,835	22,825	8,860	4,955	2,260	38,460	26,980	11,480	32,275	4,855	13,510	7,100	4,615	2,195
<b>HEATING EQUIPMENT</b>															
Central heating .....	52,240	24,813	17,334	5,557	2,593	1,943	31,530	21,878	9,652	20,710	2,935	9,397	4,105	2,379	1,894
Piped steam or hot water .....	14,108	5,450	3,303	1,975	1,604	1,776	7,206	4,832	2,374	6,902	618	1,641	1,403	1,497	1,743
Warm air furnace .....	38,132	19,363	14,031	3,982	989	167	24,324	17,046	7,278	13,808	2,317	7,756	2,702	882	151
Noncentral heating, with flue .....	14,978	5,817	4,445	2,758	1,727	231	5,621	4,206	1,415	9,357	1,611	3,439	2,472	1,620	215
Nonctrl. hting., without flue; or not htd. ....	2,529	846	669	420	551	43	796	537	259	1,733	309	450	398	533	43
Not reported .....	987	338	378	126	82	43	511	358	153	476	...	225	126	82	43
<b>YEAR BUILT</b>															
1945 or later .....	3,575	3,049	162	86	...	278	2,843	2,759	84	732	290	78	86	...	278
1940 to 1944 .....	2,433	1,405	138	143	531	216	1,385	1,273	112	1,048	132	26	143	531	216
1939 or earlier .....	63,549	26,825	22,105	8,632	4,314	1,673	33,778	22,577	11,201	29,771	4,248	13,043	6,872	4,000	1,608
Not reported .....	1,177	536	418	...	110	93	453	371	82	724	185	362	...	84	93

# Paint Your Portrait With Business Cards

By Lawrence E. Gichner  
Sheet Metal Contractor

... that emphasize your best sales features by effective placement of items, use of color, variations in type size and style and simple drawings and photographs

IN MY early days of direct selling, I became business card conscious. My job was to visit the engineers in banks, hospitals and various types of businesses. These men usually had small offices dominated by one piece of furniture — a large desk. And under the glass top of this desk were the cards — in checkerboard rows and columns — which had been presented by a great variety of salesmen.

One could quickly recognize that some cards stood out to capture the roving eye while others were lost in modest inconspicuousness. I felt that if I wanted my card to be noticeable I would have to add a healthy dash of boisterousness to its make-up. So my earliest adventure in the graphic arts was to design a card of heavy block letters, colored red — a miniature billboard — to be placed under the glass in the engineers' collections. Its existence there was never a secret.

## Impression Should Be Vivid and Specific

The main point of a routine business call is, of course, to make a vivid impression which will net you sheet metal, warm air heating and residential air conditioning sales. After the visit, the only thing remaining is the impression and the card. If the card is a striking one and if it pinpoints in a brief but effective way just what services you offer, the prospect's impression of you will remain for a longer time and will return full force when he is glancing through his cards to select a dealer from whom to buy.

A card can give specific impressions through both design and content. When I spread some cards out on a table and asked different people for their impressions, I was given a variety of immediate verbal responses.

"From the picture, this would seem to be a small concern;" "This card gives me the feeling that the company does both large and small jobs;" "This fellow offers a dignified card, but it's hard to tell from it just what type of work he does;" "That insignia shows individu-

ality;" "This company specializes only in commercial work" — these and many more comments were offered.

## Design Speaks Volumes

The dealer should use the design and layout of a card to emphasize what he feels are his best sales and information points. Notice, for example, how this was done in some of the cards illustrated here.

In one case, the business manager's name is set off by being centered in a lot of white space, yet the firm name is also prominent because it juts out at the left. Another company stresses the various products it offers by listing them separately and setting each item off with a large dot.

Still another contractor wants to emphasize not only his firm name, which he sets off in script type, but also the stability of the company, placing the founding date in a prominent place above the name.

Some companies seem to stress the phone number more than others, placing it in one of the upper corners. One firm utilizes these corners to offer photographic samples of the adequacy of its equipment.

## Color Sets Off What's Important

Color is definitely used to advantage in many cards. One firm sets off its name in color type, another by placing a colored dot behind the first letter of the name. Some companies illustrate the type of work they do by color drawings, over which is superimposed the firm name. The types of service offered also stand out when they are listed within a color strip.

Very few dealers use the back of the card, and those

(Please turn to page 93)

THESE CARDS will catch the eye of the prospect when he's looking for a company to handle a sheet metal, warm air heating or residential air conditioning job

# JOHNSON

INDUSTRIAL COMMERCIAL - NEW CONSTRUCTION

METAL WORKS  
FABRICATORS - ERECTORS  
ESTABLISHED 1916

CHARLES H. JOHNSON

627 FIFTEENTH AVENUE  
EAST MOLINE, ILL.  
TELEPHONE 3-3414

3408 (REAR) NAVARRE ROAD, S. W.

## CRAMER

Manufacturing Company

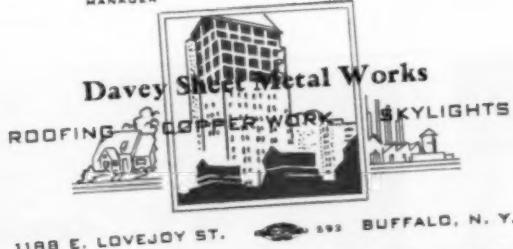
- ALUMINUM & FIBERGLAS AWNINGS
- STORM WINDOWS & DOORS
- ORNAMENTAL IRON
- GENERAL SHEET METAL

R. G. CRAMER  
PRESIDENT

CANTON, OHIO  
PHONE 7-0424

JOSEPH R. STIGLMEIER  
MANAGER

TELEPHONE  
HU. 1600



ESTABLISHED 1898

PHONE 4-6223

BACKMAN  
SHEET METAL WORKS  
INCORPORATED  
SHEET METAL CONTRACTORS  
DES MOINES, IOWA  
W. K. (VIM) BACKMAN  
Secretary

Power Brake  
Power Shear  
Power Punching  
Metal Production

## STROMBERG

SHEET METAL WORKS

1115 Congress Street, N. E.  
PAUL STROMBERG

Washington 2, D. C.  
Lincoln 4-6667

SARATOGA 3292  
REB., GILMOR 5011

SKYLIGHTS OUR  
SPECIALTY



113 S. PACA ST.

BALTIMORE-1, MD.

GICHNER  
60 Years Reliable Service  
INC.



Your Visit  
Will Be Most  
Welcome

D. H. McBRIDE  
BUSINESS MANAGER

Subbach  
COMPANY

SINCE 1901

ROOFING • HEATING • AIR CONDITIONING • INSULATION  
SHEET METAL WORK • BUILDING PRODUCTS • FLOORS • CEILINGS  
521 PRESSLEY ST. • PITTSBURGH 12, PA. • ALLEGHENY 1-5600



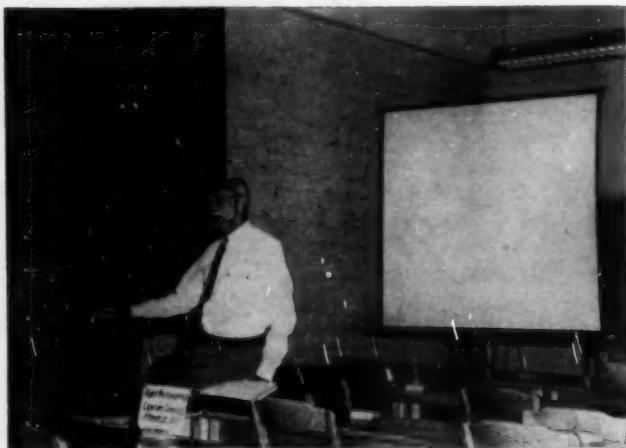
SHORT COURSE FACULTY, consisting of representatives from the University of Wisconsin, National Warm Air Heating and Air Conditioning Association and industry, meet the day before school convenes to complete the plans initiated many months before



REGISTRATION BEGINS early. Here, A. Stamm (left), who came from Montreal, is being welcomed by the registration committee — Ray Tegtmeyer, George Sell, Leonard Hills and June Kvarda, of the university's staff



AFTER AN ADDRESS of welcome by Professor Tegtmeyer and a description by Dean Lorin G. Miller of NWAHACA, of the three problems to be solved, members of the class decide which of the problems they will solve and go to their respective classrooms



VISUAL TEACHING aids constitute one of the reasons why so much information can be given during the four days in which the course is in session. Here Guy Voorhees is using a photographic projector to emphasize an important point



AIR DISTRIBUTION is an essential subject for both warm air heating and summer cooling. Here, William C. DeRoo uses a special demonstration panel to explain the various means used to create certain air patterns in a room. A smoke test is used to further illustrate air flow



## Dealers Follow Short Course



### to More Profits



IN THE CLASSROOM, the instructor gives the details of the problem, demonstrates the procedure for locating the factors required and guides the student's progress, as Clarence L. Grandstaff is doing here



PERSONALIZED INSTRUCTION is one of the regular services provided by all classroom instructors. Here Ira Metcalf shows why one ceiling factor is used in preference to another factor



LECTURES ON specific subjects are an important part of the program. Here Glydewell Burdick explains the application of the heat pump and presents data obtained over a 12 month period which indicates that the heat pump can be successfully used under climatic conditions encountered in Wisconsin



ANOTHER LECTURER covers the importance of controlling condensation in buildings. Laurence Teesdale describes moisture situations that have caused extensive damage and then explains how proper venting and vapor sealing would have prevented the condition



SALES CLINICS are a part of every good training program, whether the student is primarily interested in sales, service, installation, engineering or management. Here Robert Stuff outlines the four essential tools of a good salesman



THE EVENING HOURS are made profitable by special question and answer sessions. Here a forum, made up of instructors and industry representatives, answers questions from the floor. Members are (l. to r.) Clarence L. Grandstaff, Ira Metcalf, Ray C. Tegtmeyer, Edward Otterson and Stanley Himsel



INFORMAL DINNER sessions at the university's restaurant lead to discussions that frequently go beyond the field of warm air heating and air conditioning. Here, instructors and students exchange views on problems of national and international scope



SHORT COURSE CLASSES begin early. D. R. Franzmann and Vernon Alt arrive ahead of the bulk of the student body to review the preceding day's progress and enjoy the memory of previous years spent in a collegiate atmosphere



AT THE END of the program comes graduation. Professor Ray C. Tegtmeyer (right) congratulates D. R. Franzmann as he presents the certificate of completion which is awarded each student who completes the busy four day course

# Frequent Ads Help Dealer

. . . to tell old customers how to get information about modernizing out-of-date heating systems. The ads also remind new customers about the importance of periodic inspections and servicing

**A. H. Dreher**  
Niagara Furnace Co.

AN EDITORIAL TYPE of advertisement is the approach being used by William E. Donnelly of Cleveland to distinguish his company, the Donnelly Furnace Co., from other companies operating under names similar to his in the western section of the city. The ad is published in a weekly neighborhood newspaper that blankets an area that has been served by Mr. Donnelly for 32 years.

The ad illustrated is one of the types used. Its actual size is  $4 \times 7$  in. and the text is based around tips for the home owner; such tips as how frequently to oil a blower motor, when to change the air filter and how to tell when the fuel burner needs cleaning.

Other ads of the same size are published as alternates. They contain information about the Donnelly company such as the training it gives each service man before he is permitted to work on a customer's equipment and how the factory and shop schools keep the older service men up to date on the latest developments in the warm air heating field. Information is also given on the special trucks used for cleaning furnaces, the use of testing equipment to obtain the best efficiency from fuel burners, the advantages of modernizing old heating systems and the financing of purchases under the FHA home improvement plan.

In each ad the name of the company is played up in heavy bold face type along with a brief description of the 24 hr service plan of the company. The telephone number to call for all warm air heating requirements is repeated several times in each ad.

On special occasions the ad size is changed to  $6 \times 12$  in. and a different approach used. Usually, in such instances, the ad is entitled *Donnelly Furnace Digest*, by

## Have You Serviced Your Gas Furnace Lately?

If you don't have your gas heating equipment checked you will not know whether or not your burner is dirty, the flame yellow, and the furnace filled with carbon. You may be wasting a lot of your heat. Controls should be checked. Safety pilots should be checked and replaced. Fuel lines and burner should be oiled; filters replaced, and humidifiers checked for scale.

You should select someone who is familiar with the make of furnace or burner you have.

William E. Donnelly, who has

32 years of warm air heating experience, has spent a lot of time and money to equip his service to the best in the warm air furnace. He has supplied his servicemen with special trucks, vacuum cleaners, and testing equipment for efficient cleaning. He has seen those men to schools that were sponsored by the East Ohio Gas Company, Minneapolis-Honeywell Controls Company, and others.

Now he is offering services to

the gas users of the west side of

Cleveland, 24 hours, day or night. In the past he had limited his services only to his own installations

only but now, he has enough

time to take care of

all those who

call him.

If you are in the market to purchase a new gas furnace let me recommend

you to the Niagara before

you buy. In our service business, we find a lot of gas users who are not satisfied with Niagara gas furnaces because of the difficulty of getting parts or service for makes of furnaces that are made out of town.

William E. Donnelly sells, installs, and services all makes of gas furnaces and burners. He has a good record for honest dealing and has been on Madison Avenue 32 years.

If your furnace should fail, remember to call LA 1-7000, day or night

## SALE! FURNACE FILTERS

All 1-inch 85c All 2-inch 1.10

Filters

No Phone Orders or Deliveries!

## DONNELLY FURNACE CO.

Owned and Operated by Wm. E. Donnelly

13415 MADISON AVE. (1 Location Only) LA 1-7000

TYPICAL LAYOUT of the editorial type of ad used weekly in the neighborhood newspaper

William E. Donnelly, and a question and answer format is followed. Company sales policies and the approximate costs of certain types of heating plant modernizations are explained in detail.

The largest ad published by the Donnelly company is a four page, two color layout that not only contained many of the comments made in previous ads, but featured the various models of the furnace line handled.

It is Mr. Donnelly's opinion that to maintain a reputation built over the years, you've got to keep telling your prospective customers about your company and how it can serve them.

## EFFECTIVE BUSINESS CARDS—

(Continued from page 88)

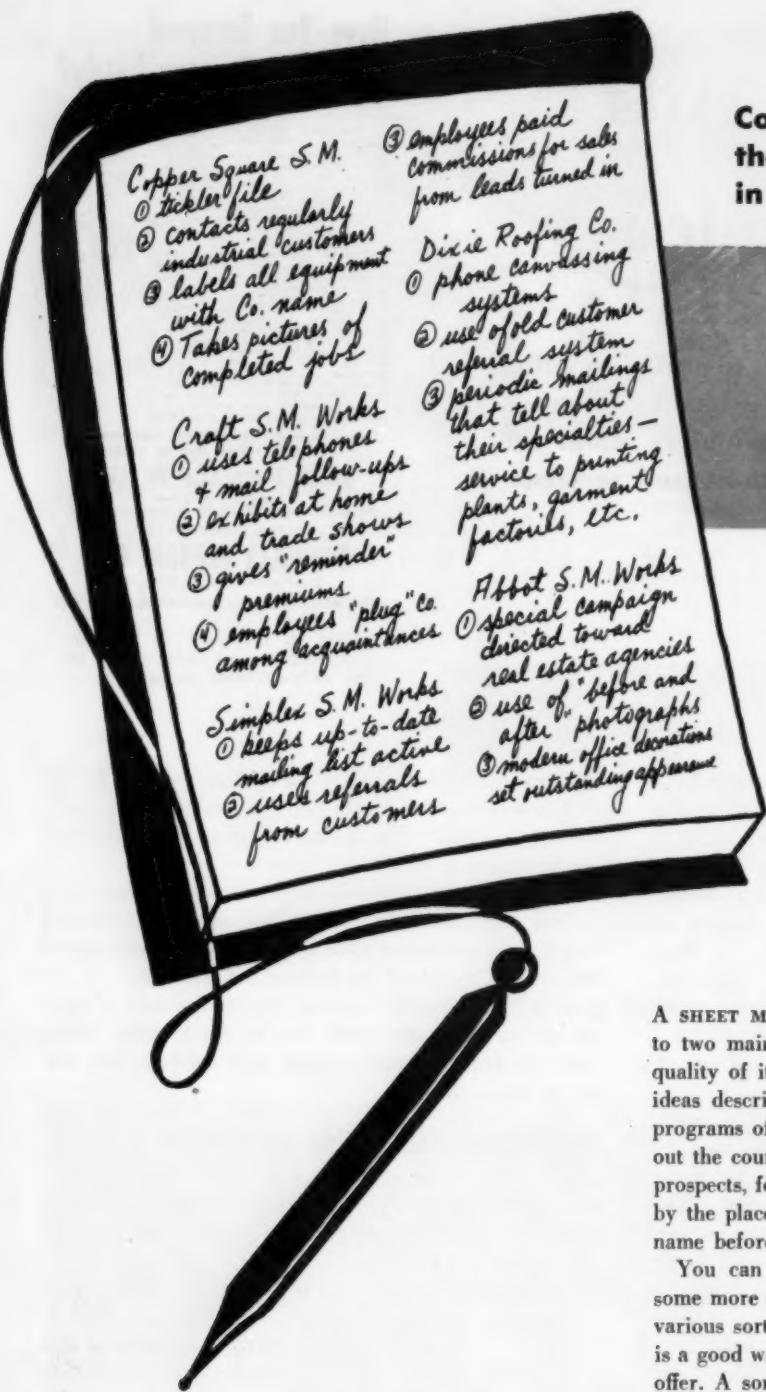
who do list there the types of equipment they sell. I have found it effective to place a map locating my plant on the back of some cards.

In each case, the dealer must decide what's the order of importance of the items mentioned. Firm name, salesman's name, types of service offered, reliability of the firm, phone number, etc. — any one or more of these can be emphasized by careful placement on the card, by simple drawings or photographs, by the use of color and by varying the size and style of the letters.

As an attention-getter on some of my own cards, I have placed a picture of myself. When I present the card I usually say something like "Here's my picture so you won't forget what I look like."

If a card is well designed and to the point, the prospect will certainly have on hand an accurate and pleasing portrait of the company mentioned.

**Contractors throughout  
the country have,  
in interviews, suggested . . .**



**35**

A SHEET METAL SHOP'S success is directly proportional to two main factors — the quality of its work and the quality of its promotional program. The 35 promotional ideas described here have formed the basis of the sales programs of various successful sheet metal men throughout the country. They include methods for reaching new prospects, for impressing prospects who walk into or pass by the place of business, and for keeping the company's name before old customers and the community at large.

You can reach new prospects in a variety of ways, some more selective than others. Sending out mailings of various sorts to an already sorted out list of possibilities is a good way to impress prospects with what you have to offer. A somewhat broader approach would utilize such media as radio or TV, newspaper ads, billboards, etc. Of course, there's the most direct way of all — the sales representative campaign. Here are a few specific tips on how to go out and get 'em.

**By D. D. Seltz**

#### **Using the Mails**

► *Develop a mailing list and keep it up to date.*

Whenever you gain a prospect or customer from any source, add his name to your mailing list. Keep this mas-

# Ways to Increase Sheet Metal Sales

. . . which include methods for getting new customers, retaining old ones, and building community good-will. Here are tips on mailings, ads, displays and direct selling

ter mailing list in a card index, alphabetically arranged. Make a mailing to this entire list from two to four times each year, using some idea that will be of sufficient interest to attract business from a certain proportion of them. When such mailings are made, print on the bottom of the mailing envelope, "Form 3547 requested." This requests the post office to notify you of any address changes or obsolete names which can be corrected or removed from your mailing list. Since there is a turnover of about 10 to 20 per cent per year in any mailing list (through people moving, dying, going out of business, etc.) taking advantage of this postal service can help you save time, energy, and money in your business.

#### ► Send out a post card house organ.

This consists of chatty remarks . . . "philosophy," humor, or useful information which your prospect will enjoy reading for a minute or so. It should end up with a plug for your product or service and brief directions as to the easiest way to get it, such as "write, phone or call TODAY!" followed by your name, address and telephone number.

#### ► Use a monthly blotter campaign.

An attractively illustrated blotter with an advertising message printed upon it is useful to your prospect and



OUTSIDE BENCHES near suburban bus stops are good locations for signs telling the public about a company's services

serves to keep your name in his mind. If you send out such a blotter on a monthly basis, your customer will unconsciously look forward to its arrival. And naturally, he'll have your name in mind when a need for your service or product arises.

#### ► Work up mailings to builders and contractors.

Get up a form letter presenting your product or service

and asking the builder or contractor to permit you to estimate on any jobs he may have. Enclose a convenient, postage-paid, business reply card which makes it easy for him to ask you to contact him. Require your secretary or any clerk in your office to mail out 30 or 40 of these letters each week to a list of prospects. The form letter can be mimeographed, multigraphed, or offset-printed at a very low cost per thousand. The business reply card also can be printed at a relatively low cost per thousand (about \$6.00 or \$7.00 after the first thousand, which is always the most expensive). Lists can be made up from your classified telephone directory, industrial directories, and a hundred other low cost sources.

► *Direct mailings to industrial plants.*

Keep in constant touch with the industrial plants in your community. It's difficult to cover them all with a personal call on the purchasing agent or maintenance engineers, but four mailings per year will serve to put the name of your firm in their mind when the need for your services arises.

► *Send out a booklet on home improvement.*

People must often be encouraged to make necessary minor repairs. Showing them how to add value to their homes is one helpful method of rousing them to action. One sheet-metal contractor published a booklet titled *How to Add \$5000 in Value to Your Home for Only \$500*. The book outlined the advantages of additional closet space, modernized kitchen cabinets, shower installations, etc., all of which help to enable a person to increase the market value of his home substantially.

► *Issue dissatisfaction insurance.*

Have printed a facsimile of an insurance policy and include it with all mailings. The policy represents insurance that, in the eventuality of any imperfections or difficulties with work that you have performed, satisfactory adjustments and repairs will be made within a certain limited time. Of course, your letter must point out that the occasion for use of the policy will be a very rare thing if you are employed as their sheet metal contractor.

► *Enclose unsigned checks for \$25.00.*

Send your contractor and builder prospects an unsigned check made out to them, personally. The accompanying letter tells them that the check represents the savings which they will make by dealing with you. Offer to sign the check if, during the progress of any work they may give you, they can get a lower estimate based upon the same specifications on which you figured.

### Newspapers, Other Media Useful

In addition to sending out their own printed matter, most sheet metal contractors find it useful to advertise in media which are distributed by others, after they determine that some potential customers will be reached by this distribution. Local newspapers or radio programs reach a fruitful audience. Ads in the yellow pages of local telephone books have proved extremely valuable by many

dealers. Here are some specific hints offered by leading contractors on how to make the best use of these means for reaching your prospects.

► *Insert a chatty, editorial type ad.*

Many sheet metal contractors run editorial type newspaper ads in their local newspapers. They'll generally philosophize about current events and end up by applying the philosophy to their business. This makes interesting reading for large numbers of readers, some of whom are good prospects and who become better prospects because they have like-minded philosophies.

► *Give household repair hints in newspaper ad.*

This is a how-to-do-it promotion. Give hints on how to make certain types of home repairs outside of the sheet metal and heating field in newspaper ads but in conclusion add that for convenience, for the saving of time and energy, the home owner should let your organization make periodic inspections and preventative maintenance repairs that will reduce the possibility of equipment failure during the season when the equipment is needed most.

► *Offer free analysis of sheet metal needs.*

It is often helpful to advertise free analysis of the needs of home owners. Such advertising in your local newspaper or on your local radio station often brings invitations to direct contact with prospects. Once you are in their home, your experienced eyes can find many places where suggested repairs or improvements can bring you business. Don't forget, also, that once you've been invited by a prospect to suggest ways to help him, he doesn't like to be put in the embarrassing situation of letting you leave without making a purchase.

► *Don't pass up chances for publicity.*

Whenever you feel that something about your firm is newsworthy, send a typewritten notice of such an event into the building, real estate or business editor of your local newspaper. Often, you'll find that he'll use it or a portion of it in his editorial columns. Make your notice short and to the point. Answer the questions what, who, when, where, how and why. Examples of newsworthy items include the addition of new employees to your organization, a new contract, a new sheet metal development, the removal of your offices to new space, etc.

► *Make yellow book ads brief, to the point.*

The firm's name and its main services should stand out boldly so that the reader can see them at a glance when scanning the page. Many hints about newspaper ads also apply here — especially the mention of free analysis of customer needs.

► *Sponsor a how-to-do-it radio program.*

One sheet metal contractor runs a program of household hints directed specifically to men. He gives talks on how to make repairs, how to install shelves, build closets, and even how to make minor automobile engine adjustments. During the program he includes several commercials.

*(This article continued on page 103)*

# Ideal System FOR



**WINTER WARMTH  
AND  
SUMMER COOLTH**



**MAKE KNO-DRAFT** Overhead Air Diffusers the big selling feature in your warm air installations. Then you're offering not only the finest kind of warm air heating, but a system designed in advance for summer cooling — an important factor with today's home builders and buyers.

Kno-Draft Overhead Air Diffusers are not just "outlets"—they're actually *air mixers*. They equalize temperatures for the greatest possible comfort—and do it

above the heads of room occupants. There are *no drafts*, no smudging, no interference with furniture placement.

You can get Kno-Draft Overhead Air Diffusers with or without integral lighting fixtures. They are easy and profitable to install.

Join the profit parade of contractors who are making money with Kno-Draft. Mail the coupon today for full information. Connor Engineering Corporation, Danbury, Connecticut.



**CONNOR ENGINEERING CORPORATION**

Dept. I-104, Danbury, Connecticut

Please send full information on Kno-Draft Overhead Air Diffusers for residential and small commercial installations.

Name.....

Position.....

Company.....

Street.....

City..... Zone..... State.....

# General Motors makes DELCO-HEAT and that means more money for me!

I CAN SELL  
HOME OWNERS EASIER  
BECAUSE OF DEPENDABLE  
COMFORT WITH LOWER  
FUEL BILLS!

MY UNITS ARE  
PRE-SOLD BY BIG  
NATIONAL AND LOCAL  
ADVERTISING PROGRAMS!

I AM ASSURED  
OF FULL PROFITS  
BECAUSE OF SIMPLIFIED  
INSTALLATION AND  
SERVICE!

I CAN SELL  
MORE BUILDERS EASIER  
BECAUSE OF NEW LOW PRICES  
AND GM MERCHANDISING  
VALUE!

## Here's What General Motors' Backing Means to You!

The General Motors automobile production line methods give you a top quality product at lower unit cost. GM combustion engineering means more heat from fuel—a selling plus that attracts builders and homeowners alike. And GM designing gives you a complete, compact gas line that fits all today's modern building needs. To top it all, you have a force of GM advertising and merchandising methods behind you. Yes, it's the only 4-way profit program in the industry!

These deluxe GSA-H units for basement, alcove and closet are available

in two sizes, 100,000 and 125,000 BTU input. The GSA-LD units for basement installation are available in four sizes: 100,000, 125,000, 150,000, 190,000 BTU input. Handsome heavy-duty steel cabinets and Multi-Rad Heat Transfer System for maximum heating surface. Delco-Heat Flame-Tailored inshot Gas Burner. Entire units, except GSA 190-LD, shipped assembled for fast, easy installation.

Get the facts about our franchise today. Write: Delco Appliance Division, Dept. AA, General Motors Corp., Rochester 1, N.Y.



## DELCO-HEAT For a good deal— DEAL WITH DELCO

... a complete line of automatic oil and gas-fired conversion burners, Conditionair forced warm air furnaces and heating and cooling units, boilers, water heaters, and electric water systems.



GSA-H

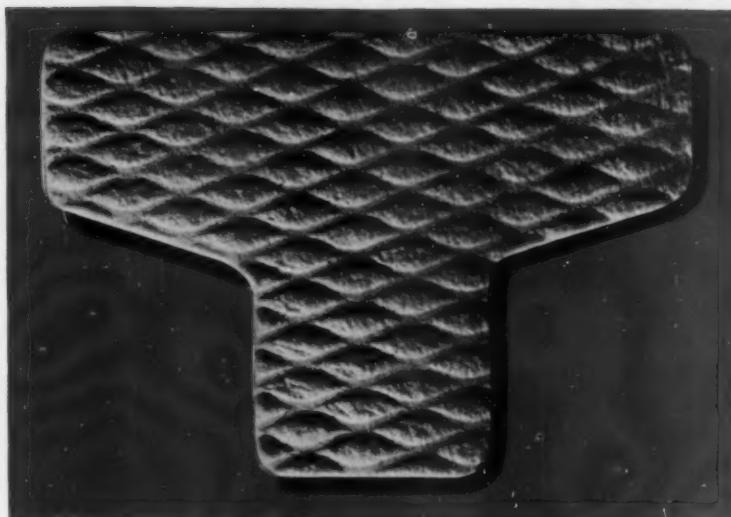


GSA-LD

Standardize on Skuttle — The line is complete — Parts are interchangeable

# A humidifier is frustrated if it hasn't good evaporating plates

**Patented Vapoglas Plates absorb  
more water . Diffuse more .  
Last longer without clogging .  
Standard in Skuttle Humidifiers**



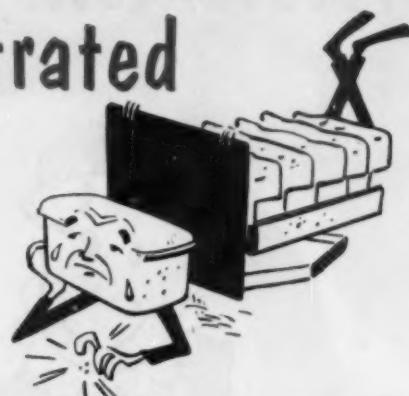
**Note these test results on evaporating plates**

Type Plate	Dry Weight Ounces	Wet Weight Ounces	Gain Dry to Wet*	Open Space in Plate#
Patented Vapoglas	1.5	3.6	140%	83%
Plate B	3.4	4.6	38%	55%
Plate C	1.67	2.61	54%	42%
Plate D	9	11.5	28%	27%

Drop test on concrete floor shows Vapoglas has greatest resistance to breakage.

\*Indicates water absorption.

#Indicates resistance to clogging with water chemicals.



No humidifier can be any better than its plates—because the plates are the only elements that can do any humidifying. The rest of the device exists merely for supporting the plates and supplying them with water. Any humidifier is thwarted of its life purpose unless it has good plates.

## BEST PLATES — A MUST

Hence it is of first importance that the humidifier you install be equipped with the best in plates—that the plates you use for replacement be the best.

## VAPOGLAS — THE BEST

By every test, Patented Vapoglas Plates are the best. They absorb 73% more water, (pound for pound). They have 83% open space (to resist clogging) against 55% for the next best. They are lighter, sturdier. Drop tests show they resist breakage better.

Patented Vapoglas Plates are made of pure glass wool compressed and stabilized under heat.

All Skuttle Humidifiers in which plates are used have Vapoglas plates.

If it's a Skuttle—it's a better Humidifier with better plates.

For Any Warm Air Heater There's A Skuttle Humidifier That Does It Better.



6973

# Skuttle

MANUFACTURING COMPANY  
MILFORD, MICHIGAN

# MicroRold® THINNESS CONTROL



*can*  
**Increase  
Profits!**

"Thinness Control" means that the decimal thickness of each sheet is uniform throughout the length and width.

Job costs are figured on a square foot basis while stainless steel is purchased on a weight basis. When stainless steel is ordered by gauge number the permissible A.I.S.I. thickness variation is plus or minus 10%. If you receive material on the heavy side of the gauge range you are paying a premium for stainless surface area. For example, if you order 18 gauge, you may receive sheets .052" thick, when a thickness of .0475" would suit your purpose. On a standard 18 gauge sheet (36"x 120") each

.001" in thickness weighs 1.26 pounds per sheet. In this example, each stainless sheet could weigh as much as 5.67 pounds more than required. You can readily see the advantages of specifying stainless rolled to the light side of the gauge range. MicroRold stainless is rolled to exceptionally close tolerances, as low as 3% average (plus or minus). Regular use of MicroRold provides more stainless area per ton or the equivalent area with lesser weight.

If you are not now a user of MicroRold sheet it will pay you to get the full details. Your steel distributor will gladly tell you the MicroRold story.



## Washington Steel Corporation

WASHINGTON

PENNSYLVANIA



**field**

You're sure of this

*You have put  
your faith in*

**field**

*more than  
15,000,000 times*

A heating man we know put  
it this way:

"We have enough headaches in this business without borrowing any. So, when we find a product that always works, that's it. Take a Field Draft Control. I install a Field, turn my back and forget it. That dependability is worth many dollars to me. And where dollars are at stake a few pennies more or less in the price don't mean much."

**FIELD CONTROL DIVISION**  
of H. D. CONKEY & COMPANY, Mendota, Illinois  
Affiliates: Conco Building Products, Inc. • Brick, Tile, Stone  
Conco Materials Handling Division • Cranes, Hoists

Visit Field Booth C-32, I. H. & V. Exposition, Philadelphia, January 24-28

# with ARMSTRONG . . .



## THE CUSTOMER'S HAPPINESS COMES FIRST

Armstrong "Indoor Sunshine" furnaces and summer air conditioners do their jobs well—make householders happy. Happy customers are satisfied customers, and satisfied customers mean more sales.



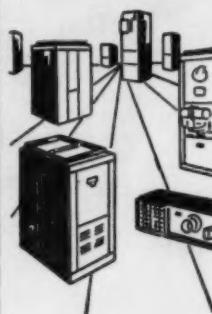
## INSTALLATION IS EASIER...FASTER

Designed to install easily, whether to replace an old furnace or for a new house. Keeps dealer costs down. Many Armstrong units are completely assembled at the factory.



## SMALL INVENTORY MEANS PROFIT

Armstrong distribution through wholesalers means little or no inventory for the dealer. Little or no money tied up.



## MORE THAN 50 UNITS...ONE FOR EVERY NEED

Selling Armstrong furnaces and summer air conditioners means selling a complete line. There's an Armstrong for every home, every situation. Every one is extremely attractive. Finished in two-tone blue enamel, baked on.



## MAKING FINE PRODUCTS IS A TRADITION

Manufactured in modern plants, manned by capable workmen, Armstrong furnaces and air conditioners are examples of fine workmanship and high quality. Priced competitively, too.



## NATIONAL ADVERTISING AND DEALER AIDS BACK UP THE PRODUCT

Continuing national advertising helps make sales. This year, Armstrong ads will be seen in *Better Homes & Gardens*, *The American Home*, *Small Homes Guide*, *Home Modernizing* and *Practical Builder*. Retail merchandising helps, too—a complete selection.

If you'd like to be "with Armstrong," see your nearby Armstrong wholesaler now, or drop us a line. We'll welcome your questions and give you straight answers.



YOU'RE ON THE ARMSTRONG MAP . . . IN A STRATEGIC LOCATION

Armstrong's two huge plants serve both sides of the continent quickly, economically. A warehousing distributor, with a complete Armstrong inventory, is within a stone's throw of everywhere. Wherever you are, Armstrong's distribution system is set up to serve you. It's better, quicker, more profitable . . . for you.

Please address Dept. AA at our plant nearest you.



Warm-Air Furnaces—Gas, Oil, Coal—A Complete Line

# Successful Ways to Increase Business

(Continued from page 96)

cial spot announcements telling the audience about the services that his company can provide for them.

## ► Tie-in your advertising with that of shell builders.

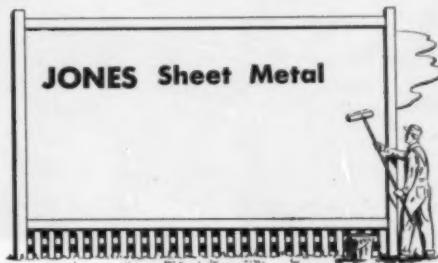
Share space in newspaper ads, on radio programs or in mailings with shell builders. Indicate that you co-operate with the specific builder to produce the finest possible sheet metal work for his buildings, and offer to provide free estimates to any of his clients or customers.

## Exhibits that Sell

There's nothing that makes people stop, look and listen as much as a good display of some sort. Well designed signs, model home shows, window displays and many similar eye catching attention getting devices can be used to good advantage by sheet metal dealers. For example:

## ► Cooperate with builders on model home construction.

In return for an agreement to supply sheet metal work for an entire development, you might cooperate with a builder to supply the work for the model home on some kind of provisional or minimum cost basis, and with the further provision that your work in the model home be identified with your name. If your name is prominently enough displayed, the visitors examining the home may well remember it when they need sheet metal work done at either their homes or places of business.



## ► Set up billboards.

If your place of business is located on a heavily traveled street, one or two billboards at one mile and half mile intervals on either side of your establishment can help to acquaint prospects with your place of business. The billboards could read: "1 Mile (or 1/2 Mile) to Blank Sheet Metal Contractors, Headquarters for . . . (then list your services and products)."

## ► Tie in with a silk screen printer to fabricate signs.

You don't have to restrict yourself to placing signs on the highway or street near your business. They can be set up anywhere in town. To make these signs more attractive and unusual, you can co-operate with a local silk screen printer in their fabrication. These signs might advertise both establishments, and in this way increase busi-

ness volume in a very specific way — by giving prospects the idea that they'd like similar signs for their businesses.

## ► Dramatic window displays.

If you have a window that can be easily seen by a sizable volume of traffic, make good use of it. You can display your products in a variety of ways that will attract the notice of passers-by. And who knows how many of them may be good prospects? Window displays are made increasingly effective by use of moving exhibits, blown up photographs of the work you have done, and well known types of products shown with a new twist (in new uses, with new attachments, etc.).

## The Direct Approach

The direct mailings, various forms of advertising, signs and displays we've been mentioning are, of course, extremely useful. But they can't answer any questions the customer may have based on what he's just read, heard or seen. They can't elaborate on just the right points to clinch the sale, using as signposts the prospect's voice intonations or facial expressions. This is where the direct approach comes into its own. A person-to-person approach can be the most effective one there is if handled correctly.

## ► Map out a telephone campaign.

Set up a tickler file of old customers and prospects. Call five or six of them every day so that each one gets a call from you about every six months. Though they may not have work for you at the moment, these calls, serve to keep you fresh in their mind. When work comes up in between calls, chances are they'll remember to call you. A telephone campaign permits you to contact more customers in less time, of course, than if you pay a visit to each one.



## ► Make a door-to-door survey of customers' needs.

During a slow season, one sheet metal contractor sent his representatives to the homes of every resident of his neighborhood with a list of suggested repairs or improvements that might be needed. It was surprising how much work was necessary in that neighborhood and how large a percentage of it came to him as a result of the survey.

## ► Sheet metal business cards.

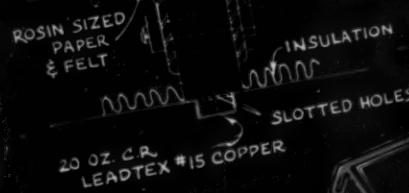
You can attract considerable notice on business calls by presenting an attractive business card. Have your business card printed in bright colors on an aluminum

(This article continued on page 106)

## Suburban Office Building NEW YORK STATE

Another case of  
**COPPER**  
where it counts!

Architects: VOORHEES, WALKER, FOLEY & SMITH, N. Y.  
Sheet Metal Contractor:  
HUTCHINSON ROOFING & SHEET METAL CO., INC., White Plains, N. Y.  
General Contractor: GEORGE A. FULLER CO., N. Y.  
Revere Distributor: G. A. FELD CO., INC., N. Y.



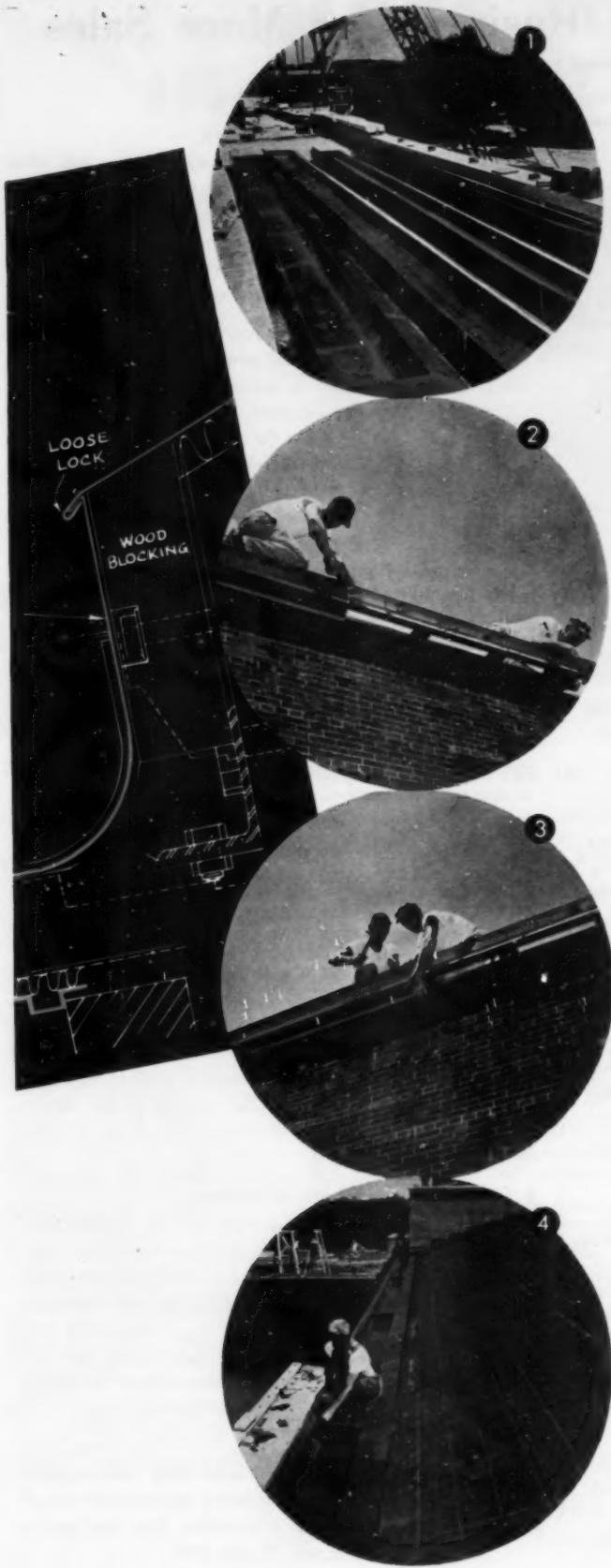
DETAIL AT LEFT shows gutter expansion joint. Gutter detail is below. The 32 oz. gutter was installed in accordance with techniques recommended in Revere's booklet, "COPPER AND COMMON SENSE." Do you have a copy? The seams were riveted to transfer the stress and soldered for watertightness. NOTE: seams that join ends of sheets together must possess strength at least equal to that of the sheets themselves. In gutter linings of heavy copper (24 oz. or over) having greater strength than a good soldered seam, the sheets should be riveted together to develop proper joint efficiency.



Another case of  
**REVERE** helping you...

This advertisement is appearing in ARCHITECTURAL FORUM, ARCHITECTURAL RECORD and PROGRESSIVE ARCHITECTURE. It tells Architects, Builders and Engineers the many advantages of specifying enduring Revere Copper for their jobs, thus promoting the use of more copper by you . . . the metal you prefer to work with . . . the "ageless" metal that you can trust to protect your reputation for a quality job.





This building was selected from our case history files primarily because it combines fine gutter design by the architect with splendid execution of the specifications by the sheet metal contractor.

Check the detail at left and you'll see what we mean. Also note photograph #1 showing prefabricated gutter sections as they were delivered from the contractor's shop. Copper lends itself so well to prefabrication, with resultant savings in time and labor. Also note photograph #4 showing the placement of the gutter expansion joints approximately 25' apart, a most important factor in trouble-free installations. (Caption #4).

In fact, proper installation is as important as good design. The two go hand in hand. For modern, trouble-free installation techniques consult Revere's "Copper and Common Sense", a booklet that has become the "bible" of the sheet metal industry. It is based on more than a century and a half of experience with sheet copper. If you do not have a copy send for it today. And if you have any technical problems confronting you on current jobs, let us know and we'll put you in touch with Revere's Technical Advisory Service. No obligations.

We are not just mouthing an advertising phrase when we say, "Keep out of trouble with copper." For this "ageless" metal has proved its enduring qualities for centuries. It can't rust or rot. Its design possibilities are unlimited, thus giving the architect a free rein. Sheet metal men prefer to work with it as it solders beautifully, requires no special tools, is readily worked into any desired shape and is ideal for shop prefabrication. *In fact, there is not another metal or alloy that has all of the outstanding construction characteristics of copper.* Write us today about the money-saving advantages of Revere Keystone Thru-Wall Flashing\*. And, if you have technical problems, we will put you in touch with Revere's Technical Advisory Service.

\*Patented

**1** PREFABRICATED SECTIONS of gutter prior to installation. Much time is saved on the job when sections are prefabricated in the shop. This also prevents delays due to bad weather.

**2** SOFFITS being installed. The copper pans underneath gutters are attached to wood outriggers with Fiberglas insulation between the outriggers.

**3** FASCIA AND CORNICE being attached. Gutters are of 32 oz. Revere Copper with the outside cornice of 20 oz. Revere Lead Coated Copper; all cold rolled.

**4** SHEET METAL MEN prefer copper to any other metal with which to work. It solders to perfection. No special tools are required and it is readily worked into any desired shape. Note expansion joints which are spaced approximately 25' apart. Spacing of expansion joints in relationship to the gauge of metal used is of the utmost importance to a trouble-free installation (See "COPPER AND COMMON SENSE").

45,000 LBS. OF REVERE SHEET COPPER were used on this job. Entire building was flashed with 16 oz. Revere Sheet Copper under the sills. Revere Copper was also used for through-wall flashing, cap and base flashing.

**REVERE**  
COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801  
230 Park Avenue, New York 17, N. Y.

Mills: Baltimore, Md.; Chicago and Clinton, Ill.; Detroit, Mich.; Los Angeles and Riverside, Calif.; New Bedford, Mass.; Rome, N. Y.—  
Sales Offices in Principal Cities, Distributors Everywhere

SEE "MEET THE PRESS" ON NBC TELEVISION, SUNDAYS

# Ways to Gear Your Business for More Sales

(Continued from page 103)

or other light metal strip. Such a card will always stand out from other cards wherever your prospect may keep them.

## ► Dramatize your sales talk.

One sheet metal contractor always carries several new \$20.00 bills with him. When he reaches the point in his sales talk where the prospect seems to be wavering, he pulls out one of these bills with a flourish and says, "Here's proof of what I can save you on this job! Keep this bill in your safe until the work is completed. Then, if you feel I haven't saved you at least that much, keep the bill. If you're satisfied that I've saved you \$20.00 or more on the job, return the bill to me with your check." Many other devices may be used. Miniature demonstration units have been found useful. Large drawings or photographs of installations you have already completed are also helpful.

## ► Make use of give-away items.

There are many suitable gifts and good-will builders that you can give to the prospect. Just to mention a few, there are desk pads, pen and pencil sets, calendars, ash trays and hundreds of other items that can be engraved with the name of your firm. These items can also be sent to your good customers as gifts at Christmas.

## "Speak for Yourself, John"

One of the best ways to sell prospects is to let your work and your place of business speak for themselves. You can use photos of previous jobs and referrals from previous customers to convince a home owner that you're just the person to do the job at hand. You can, in addition, use your shop and office as a showcase for your handiwork. Specifically:

## ► Use the before and after approach.

This approach is particularly effective in selling repair jobs. Take photographs of several repair jobs, both before and after your work has been done. Use these photographs not only on house calls, but also in your mailings and newspaper ads.

## ► Show 3-D pictures of previous jobs.

A picture is worth a thousand words, so why not take color snapshots of each of your jobs . . . or at least those jobs of which you are most proud. You can purchase a three dimensional viewer and have colored slides made from your snapshots at low cost. And whenever a prospect comes to your office, or you visit him, you can show him your work almost as realistically as if you'd taken him to see the actual job.

## ► Label your jobs.

Whenever you complete a job, have a well-designed label reading "Sheet Metal Work By \_\_\_\_\_" that you can paste on or stick on in an obvious place where

it can be easily seen by passers-by.

## ► Get referrals from old customers.

Upon completion of a satisfactory job, you can often get your customer to recommend you or refer you to friends or acquaintances who can also use your services. Make it a habit to ask each of your customers for the names of two new prospects to whom he will either introduce you, or whom you can contact using his name.

## ► Let your place of business represent your work.

Too often, a sheet metal contractor feels he doesn't need his own services to accomplish his own business ends. It's important, however, that anyone who comes to your place of business be impressed by a need for your services. If you don't show a good use for sheet metal work, why should he need it? Make your office representative of your business. Use sheet metal work for any task appropriate. Metal files, metal shelving, metal partitions, etc., should be part of your own equipment in addition to such displays and exhibits as you may have on view for your customer.

## ► Get your employees to "plug" your firm.

Whatever capacity a man is employed in, he's always willing to earn extra money. Whether he's a janitor, a laborer, a skilled workman, or a salesman, he's in constant contact with friends and acquaintances who may, at one time or another, be able to use a sheet metal contractor. Let your employees know that they'll earn a nice commission on any work they bring in, regardless of their capacity in your organization.

## Gear Your Business to the Community

Community good-will is essential for a flourishing business. You can keep your name before the people in your town or city by participating in local events and charities. In addition, gearing your advertising to community needs and interests makes it doubly effective. When you show yourself to be a responsible citizen, you are at the same time showing yourself to be a responsible businessman.

## ► Link your promotions to local events.

Community celebrations, church affairs, parades, etc., present many fine opportunities for business promotions. You can help to support school band units, dances, etc., in which case banners can be carried as advertisements for you or you will be mentioned as a sponsor in programs. While direct returns from such activities may not be apparent, they will give you a better chance of getting business when such business is to be given out.

## ► Take part in fair exhibits.

Chances are that your community holds one or more fairs each year. Here is a wonderful opportunity to call your business to the public's attention. You can have a

(Please turn to page 108)

# MORE POWER IN SMALLER FRAMES

SAVE  
SPACE

WEIGH  
LESS

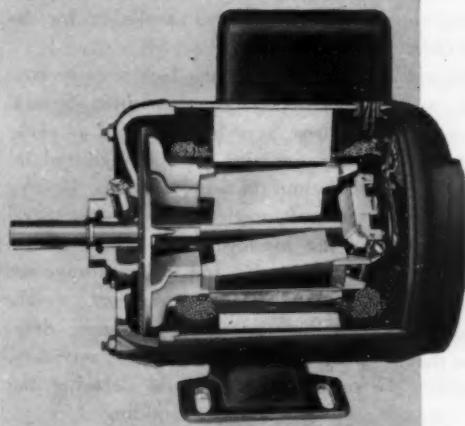


## NEW *Century* Form "F" Fractional H.P. Motors

NOW AVAILABLE IN  $\frac{1}{8}$  TO  $\frac{3}{4}$  H.P.

Thanks to new techniques developed in the last several years, this *smaller* power package combines improved performance with even greater *Century* dependability.

### Here's What New Techniques Deliver...



- 1 Better magnetic characteristics for the motor because of more uniform silicon laminated steel in magnetic cores.
- 2 A high dielectric and increased abrasive resistance qualities result from improved plastic insulated wire in the coils.
- 3 Important slot space is saved by improved plastic slot insulation. Extremely tough with higher dielectric resistance.
- 4 Unusual resistance to abrasion, moisture and heat is provided by improved thermal setting plastic varnish insulation on windings.
- 5 Squirrel cage rotors are more uniform because of improved high-pressure die-cast aluminum rotors. Individually, dynamically balanced.
- 6 Increased cooling ability is provided by improved ventilation.
- 7 These new *Century* Motors incorporate all mechanical features proved effective in thousands of varying applications.

For full details on *Century* Fractional H.P. Motors—write for bulletin 1-S Page 1. *Century* also offers a wide range of types and sizes in AC and DC . . .  $\frac{1}{8}$  to 400 H.P.



CENTURY ELECTRIC COMPANY, 1806 Pine Street, St. Louis 3, Missouri  
Offices and Stock Points in Principal Cities

832

# Neighborhood Participation Builds Dealer Good Will

(Continued from page 106)

backdrop of blown-up photographs of your work as an ideal eye catcher for your booth. You can also display samples of products and services, and even get the audience to participate in your exhibit by getting them to test certain types of metal. A talk by an experienced sheet metal contractor and brochures and other material can specifically point to the advantages of dealing with your firm.

## ► Hold an anniversary party.

Each year at the time of your business anniversary throw a party or open house to which you invite all of your customers, a number of your best prospects and even the community at large. Your old customers can be very instrumental in selling you to your prospects, and your hospitality will sell you to your neighbors.

## ► Support school or neighborhood teams.

There are a number of sheet metal contractors who have gained an enormous amount of good will in their communities by supporting school or neighborhood athletic teams. This usually consists of supplying uniforms and equipment, in return for which the team may have the company name embroidered on its uniform

sweaters and shirts. Naturally, this keeps the firm name before the audience during athletic events, and often the sponsor is mentioned in newspaper reports of such events.

## ► Hold a picnic for underprivileged children.

Once a year why not shut up shop for a day and take a group of underprivileged children of your community on an outing? You can hire a bus and drive to an interesting scenic site, a picnic grounds, or amusement park. You'll enjoy yourself and so will your guests. Also, you'll gain a lot of good will and this also will make fine copy for a story about your firm in the local newspaper.

You can no doubt think up additional methods for getting your message across to prospects, for retaining old customers and for impressing the community with your efficiency and reliability. There are many avenues open—both direct (an ad) and indirect (community activities). And there are many media open too. Some of these (such as television) we haven't discussed in particular, but you can see that such special appeals as a free examination and estimate would be effective in all media.

## Installing Window Units in Large Buildings

... building managers propose restrictions

**RULES** for installing window air conditioning units, recommended by the Building Managers Association of Chicago to its members, received no action by the National Association of Building Owners and Managers when brought up at the national group's annual convention in Denver.

The main recommendation of the Chicago BMA is that office building managers not permit tenants to install units that extend beyond the line of the window sash or that prohibit the operation of the window in its entire travel.

Other recommendations by the group's general operating and maintenance committee are that:

1) Tenants consult the office of the building before entering into any contracts or agreements for air conditioning.

2) Elevator operators secure written admission slips from the office of the building before permitting any air conditioning unit to be brought into the building.

3) The tenant bear the cost of extending the necessary new electrical circuits needed for the installation of his own air conditioning units, regardless of size or type.

4) Tenants not be permitted to install a water cooled unit until a thorough survey is made of the requirements, and arrangements are made for bringing in a separate water line and drain with due regard to the overtaxing of existing facilities.

5) Building will not agree to service or repair any air conditioning units, and that this be made clear.

6) Building will not agree to store units during the winter—but should suggest to tenants that the firms that install units usually have facilities for storage.

The committee is contacting air conditioning unit manufacturers to promote these recommendations and the development of window units that will be "less bulky" than the present models.

The chairman of the committee,

in a letter to the members, stated that "we have been informed by several manufacturers that they can install units allowing free travel of the window and that they do have such installations available for inspection."

There are many factors to be considered, says the committee. Several of these have been isolated as problems stemming from unregulated installations of window units. Besides those of interference with free travel of the window, overloading of electrical circuits, and winter storage are those of adequate support, weight distribution, water exchange, dripping, accessibility for servicing, nuisance factors, and defacing the appearance of the building.

In one city, where window washers have refused to work where window units are installed, because of lack of footing, strict rules for installation are in force. In another city, window units interfered with scaffolds used by tuck-pointers.

# It's new!

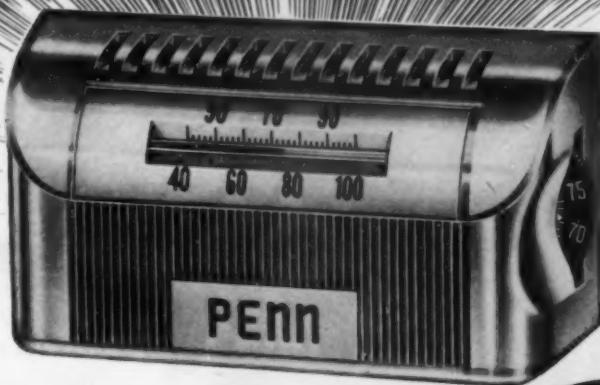
*the modern,  
horizontal*

## New Look in heating thermostats

Here's the room thermostat with sweeping horizontal lines designed for today's modern home. Its functional design and horizontal "new look" are at home with modern or traditional interiors. Its attractive, neutral-colored plastic cover blends with any color scheme . . . no need for repainting!

But, the modern beauty of the Penn heating thermostat is more than "skin deep". Under the cover, you'll find snap acting contacts . . . still the *very best* for sturdiness and long-life dependability. Another "inner beauty" is time-tested heat anticipation . . . the Penn magic that stops Hot-n-Cold living.

Don't settle for less. Specify and install Penn heating controls . . . they'll always deliver the better heating comfort you sell. **Penn Controls, Inc., Goshen, Indiana.** Export Division: 13 E. 40th Street, New York 16, N. Y., U. S. A. In Canada: Penn Controls Limited, Toronto, Ontario.



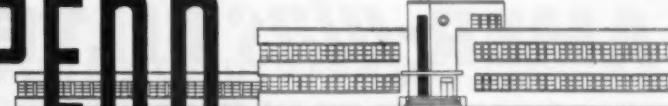
Nationally  
Advertised in  
Better Homes & Gardens  
American Home  
Newsweek



New Penn thermostat with horizontal "new look" harmonizes with modern and traditional surroundings.



# PENN



**AUTOMATIC CONTROLS**

FOR HEATING, REFRIGERATION, AIR CONDITIONING, GAS APPLIANCES, PUMPS, AIR COMPRESSORS, ENGINES



"Hunters" don't have to hunt very long for AMER-glas FILTERS. They're now available everywhere. National distribution from a standing start three years ago didn't just happen. It came about because one manufacturer after another selected AMER-glas FILTERS as original equipment for furnaces and air conditioning units.

Behind this new product—AMER-glas—stands an old and reliable concern—American Air Filter Company. For thirty years AAF has been exclusively concerned with air filtering problems. Today AAF is the acknowledged leader in air cleaning equipment.

So, stop "hunting"! Write today for complete information on AMER-glas FILTERS.

# AMER-glas<sup>®</sup> FILTERS

FOR FURNACES AND AIR CONDITIONING UNITS



American Air Filter COMPANY, INC., 355 Central Ave., Louisville 8, Ky.

There's a Big Waiting Market for These

# NIAGARA SERIES 60

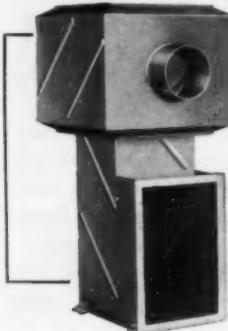
OIL-  
GAS

*Activated Heat*

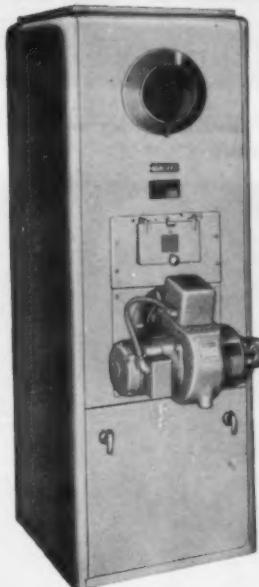
CONVERTIBLE  
FURNACES

**Designed for Easy Conversion  
from One Fuel to the Other**

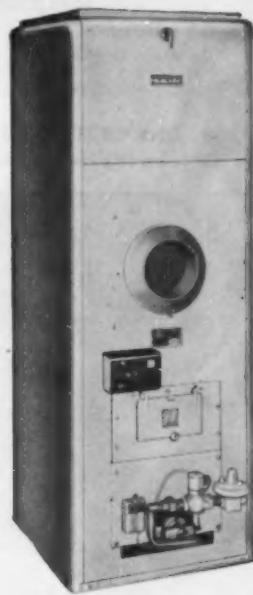
Designed for operation with either oil or gas, these Niagara "Convertibles" provide economical, modern, automatic warm-air heat for homes ANYWHERE — "Activated heat" (warm air in motion — LIVE heat!) . . . and are easily changed from oil to gas or gas to oil in the event a change in fuel becomes desirable.



Every Series 60 Convertible furnace is equipped with the exclusive Niagara-made rectangular heat exchanger of steel, making possible exceptionally compact units.



Model 60-75 VAC  
OIL



Model 60-75DFAC  
GAS

**FOR HOMES EITHER WITH OR WITHOUT BASEMENTS**

• The complete Niagara lines include gas, oil and coal furnaces for all types of installations, and Niagara Cooling Units designed to use the blower, filter and ducts of forced air heating systems. Write for detailed information.



Model 60-70G  
OIL

Series 60 Convertible furnaces are available to meet any type of installation . . . "high-boy" down-flow and conventional up-flow, both generally located in utility rooms, and gravity and conventional forced-air types for basement installation.



Model 60AC  
OIL or GAS

**NIAGARA FURNACE DIVISION THE FOREST CITY FOUNDRIES COMPANY  
2500 WEST 27th STREET \* CLEVELAND 13, OHIO**

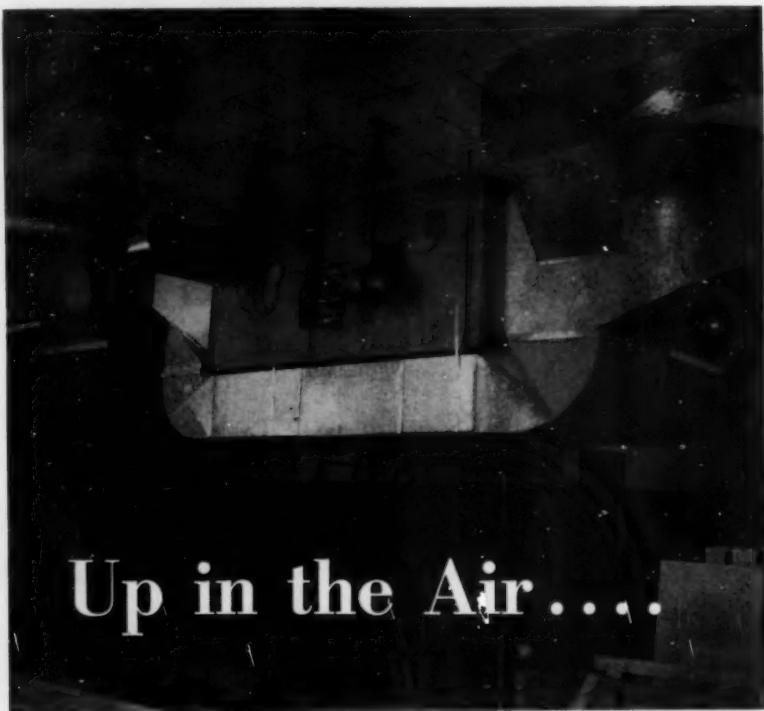
Gas • Oil • Coal Furnaces • Summer Cooling Units

**NIAGARA is the word for MAXIMUM HEAT at MINIMUM COST**



**1** NEW SUPERMARKET in Detroit area has overhead heating and cooling installation. Two of the supply outlets, all in the ceiling, are just inside the doors shown above

**2** ONE OF TWO oil fired duct heaters, showing overhead installation. Note cooling and circulation unit at left



## Up in the Air...

... and out of the way is the heating and air conditioning in this new store

By T. E. Trese,  
President, OverHead Heaters, Inc.

IN A NEW National Food Stores supermarket recently opened in the Detroit area, heaters, circulation units, cooling coils, ducts and outlets, with the exception of return air ducts, are all overhead. The units are installed in a storage room at the rear of the building. The overhead arrangement saves floor space and permits flexibility in installation.

On the basis of a calculated heat loss of 750,000 Btu per hr, two oil fired duct heaters using No. 2 fuel oil are installed for the heating load. Cooling load is 318,400 Btu per hr.

The duct system was designed to circulate the air in the building for both summer cooling and winter heating. For this purpose, two ceiling suspended air handling units with cooling coils were chosen. Approximately 10,640 cfm will be delivered for the heating cycle and 13,200 cfm for cooling.

Conventional thermostats are used to control the two duct heaters. The cooling coils are supplied by one 45 hp radial compressor, which is controlled by a separate cooling thermostat. The air conditioning system is operated 24 hr a day during the cooling season.

For summer cooling, the duct heaters are bypassed. Dampers are manually operated because the company has a maintenance staff familiar with this type of installation.

Supply outlets, all overhead, are carefully spaced away from open freezers. The supply ducts are in the attic space and are insulated. Return air ducts are under the concrete floor and connect to risers behind the storage room partition. Outdoor air is introduced at all times the fan is operating.

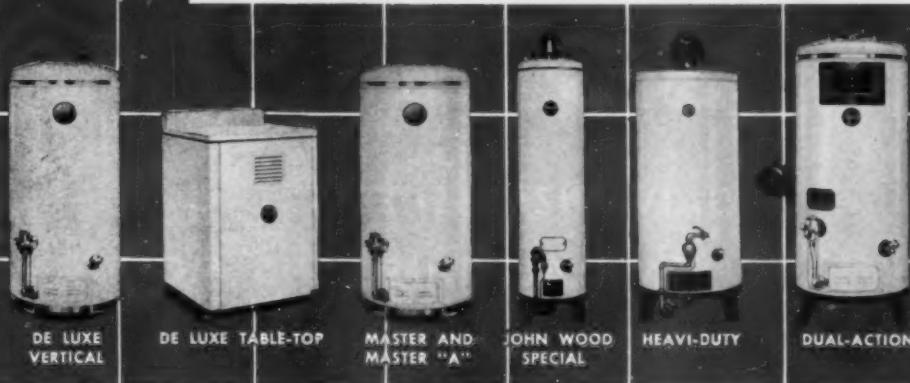
Since both the heating and cooling equipment are ceiling suspended, it was decided to use bar joist construction in the building in order to obtain the needed support. The overhead units were hoisted into place by the use of chain falls. All this was done before the ceiling was installed. Provisions for venting are the same as for conventional units.

A. J. Segal & Sons is the heating contractor. The architect is C. Fraizer.

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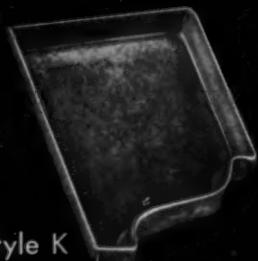
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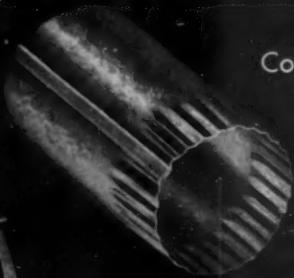
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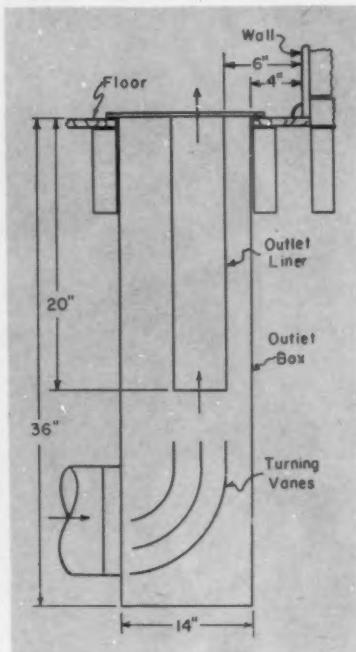
AMERICAN STANDARD • AMERICAN BLOWER • CHURCH SEATS & WALL TILE • DETROIT CONTROLS • KEWAHEE BOILERS • ROSS EXCHANGERS • SUNBEAM AIR CONDITIONERS

# **Room Air Distribution**

## **For Year 'Round Air Conditioning**

By H. E. Straub and S. F. Gilman

WITH SEVERAL sizes of floor registers and floor diffusers installed singly at one of three locations in a test room, studies of the room air distribution were made over a range of flow rates under winter heating, isothermal, and summer cooling conditions of operation. It was found that of three floor locations studied, floor outlets at the center of an exposed wall provided the best air distribution during year 'round conditions of operation, according to a report presented at the most recent annual meeting of The American Society of Heating and Ventilating Engineers.



EACH FLOOR supply outlet was connected to the duct system in the basement by this apparatus

AN IMPORTANT problem involved in the year 'round air conditioning of residences is the distribution of heated air in winter and cooled air in summer from the same supply outlets in such a manner that satisfactory conditions of comfort are maintained at all times. This problem has been under investigation for some time at the University of Illinois in cooperation with the American Gas Association. The object of the research program is to obtain en-

gineering data for selecting the proper types and locations of supply outlets for year 'round air conditioning of residences.

Results of studies conducted with supply outlets at one high sidewall location were condensed from an ASHVE paper and published in American Artisan, May 1953.

This report deals with floor registers and floor diffusers at three different locations in a test room under winter heating, isothermal, and summer cooling conditions of operation. (The term "outlet" is general, covering both registers and diffusers. The term "register" is used here to refer to a conventional floor outlet with vertical vanes, and "diffuser"

refers to a floor outlet with vanes deflected uniformly from the vertical at the center to about 40 deg from the vertical at each end.)

Approximately 70 thermocouples are located in the walls, attic and basement of the test building. Rows of thermocouples were uniformly spaced 4, 30, 60, 78, and 90 in. above the floor. The average temperature as measured at the 30 in. level in the center of the room was 75 F during all tests.

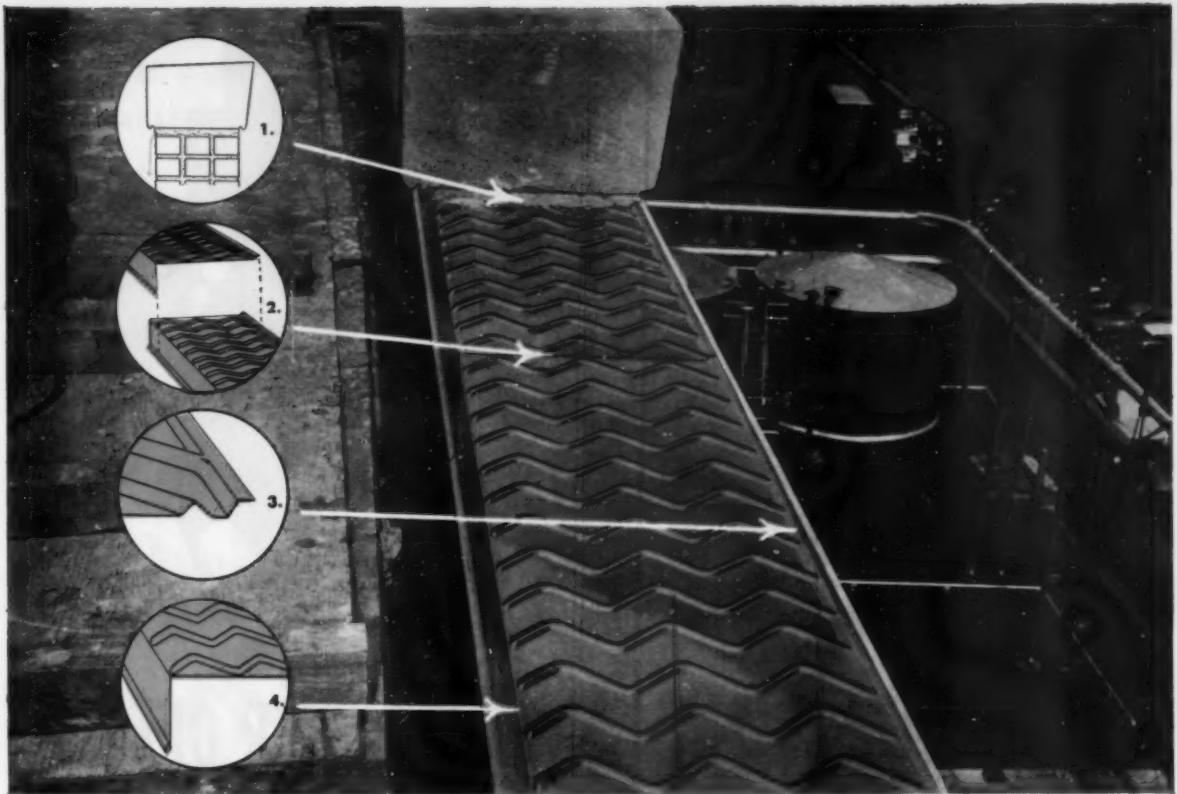
Each floor supply outlet was connected to the duct system in the basement space by the apparatus shown in the accompanying drawing. Supply air was delivered to a 14 X 14

(Please turn to page 120)

Mr. Straub is Research Associate in Mechanical Engineering, University of Illinois, and member of ASHVE.

Mr. Gilman is Research Assistant Professor of Mechanical Engineering, University of Illinois, and junior member of ASHVE.

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**ANACONDA THROUGH-WALL FLASHING** is readily adapted to practically every brick or masonry construction. Note that the smooth selvage (4) forms a counter-flashing free of buckles or distortion at the bend.

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The Colgate-Palmolive Company's new Industrial Service Building, Jersey City, N. J., is four stories high and contains nearly nine acres of floor space. It represents a big investment. Naturally, special precautions were taken to assure sound and lasting construction.

Adequate through-wall flashing of efficient design was essential. Otherwise, water would penetrate the brick and mortar joints . . . cause damage by deterioration and freezing . . . eventually reach interior surfaces.

The solution? Jacob Ringle & Sons, Sheet Metal Contractors, Jersey City, N. J., installed 1,552 feet of **ANACONDA** Through-Wall Flashing.

In the picture above you see four reasons why Mr. Ringle selected **ANACONDA** Through-Wall Flashing to do the job. They are:

### 1. NO LATERAL MOVEMENT

The  $\frac{3}{16}$ " high zigzag corrugations provide complete bond in the mortar in all lateral directions.

### 2. WATER-TIGHT LAP JOINT

**ANACONDA** Through-Wall Flashing is easily locked endwise to provide a tight joint by simply nesting one or two corrugations. If desired, the joints can be easily soldered because of the flat surfaces between the corrugations.

### 3. INTEGRAL DAM

The integral dam throughout its length is the full height of the corrugations. The accurately stamped dam and corrugations of the **ANACONDA** Flashing assures complete drainage in the desired direction when installed on a level mortar bed.

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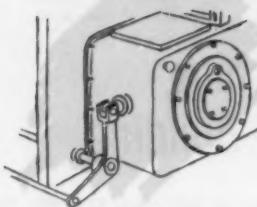
**FREE BOOKLET!** Publication C-2B tells how to use adequate flashing of efficient design. 27 illus. Write to: The American Brass Company, Waterbury 20, Connecticut. In Canada: Anaconda American Brass Ltd., New Toronto, Ontario.

good construction demands

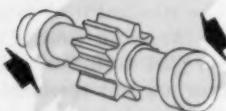
**ANACONDA**  
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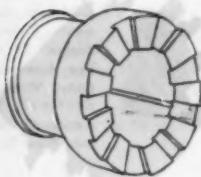
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# Year 'Round Air Conditioning with Floor Diffusers

(Continued from page 116)

in, outlet box and then directed upward into a liner by turning vanes. The liner had the same dimensions as the nominal size of the outlet, and was so located in the box that the outside edge of any supply outlet, regardless of its size, was 6 in. from the wall. The opening of the box not filled by the liner was capped at the floor level and sealed. Before the supply outlet was put in place, the turning vanes were adjusted to give a uniform velocity across the face of the liner. The dampers in all outlets were set for straight flow where possible; otherwise they were removed.

The sizes of the registers and diffusers were selected to provide supply air velocities, based on the outlet free area, of 300, 450, 600, and 900 fpm with the flow rates as given.

The general procedure for each test consisted of velocity and temperature traverses in the test room, supplemented with smoke tests.

Of the 57 tests conducted, 36 were conducted under winter heating conditions, 16 under summer cooling conditions, and five were isothermal explorations. Of the heating tests, 20 were made with floor registers, and 16 with floor diffusers. Nine cooling tests were conducted with floor diffusers and seven with floor registers. The tests are listed in the accompanying table. The letter *D* following the number signifies a floor diffuser; otherwise, a floor register was used.

## Tests with a Heated Basement

Of the tests listed in the table, 34 were conducted, under the conditions of winter heating with a heated basement; i.e., basement space temperature of 75 F. During these studies, the outdoor temperature was approximately -5 F.

The room used for these experiments was rectangular in shape, with two walls exposed. The long wall was 18 ft in length with two win-

dows, and the short exposed wall was 14 ft across with one window and a door.

Outlet locations for these tests (of which three are designated in the table) were:

I—High sidewall, directing the air pattern parallel to the window on the long side of the room but toward the window and door on the second exposed wall.

II—Floor outlet centered next to the inside wall opposite the long exposed wall with two windows.

III—Floor outlet centered along the long exposed wall with two windows.

IV—Baseboard return intake located in center of narrow inside wall opposite the exposed narrow wall with one window and a door.

V—Floor outlet located in the corner where the two exposed walls join.

For a given diffuser, the results of the studies showed that the most satisfactory location was III; next, II; and third, V. Corner locations have distinct disadvantages because the adjacent wall surfaces so confine the jet that little induction of room air is possible, the result being large temperature variations and little air motion in the occupied zone above the desired fpm (as indicated in the ASHVE Guide for 1953). Test No. 51 was conducted in an attempt to improve the air distribution from a corner location. Two diffusers were butted together, with one facing along the east wall and the other facing along the north wall. Special vane settings were used in an effort to blanket both the east and north walls with warm air. However, little improvement in the air distribution was obtained. From this and other tests conducted at location V, it was concluded that restricted regions such as corners are not desirable for diffusers.

For a given floor register, the results of the studies indicated that locations II, III, and V resulted in

about the same air distribution — which, however, was better than that obtained with high sidewall outlets. On the other hand, floor registers resulted in poorer air distribution than was obtained with diffusers at location V. In general then, in these particular tests, the floor diffusers provided better air distribution than the floor registers, which in turn provided better air distribution than high sidewall outlets.

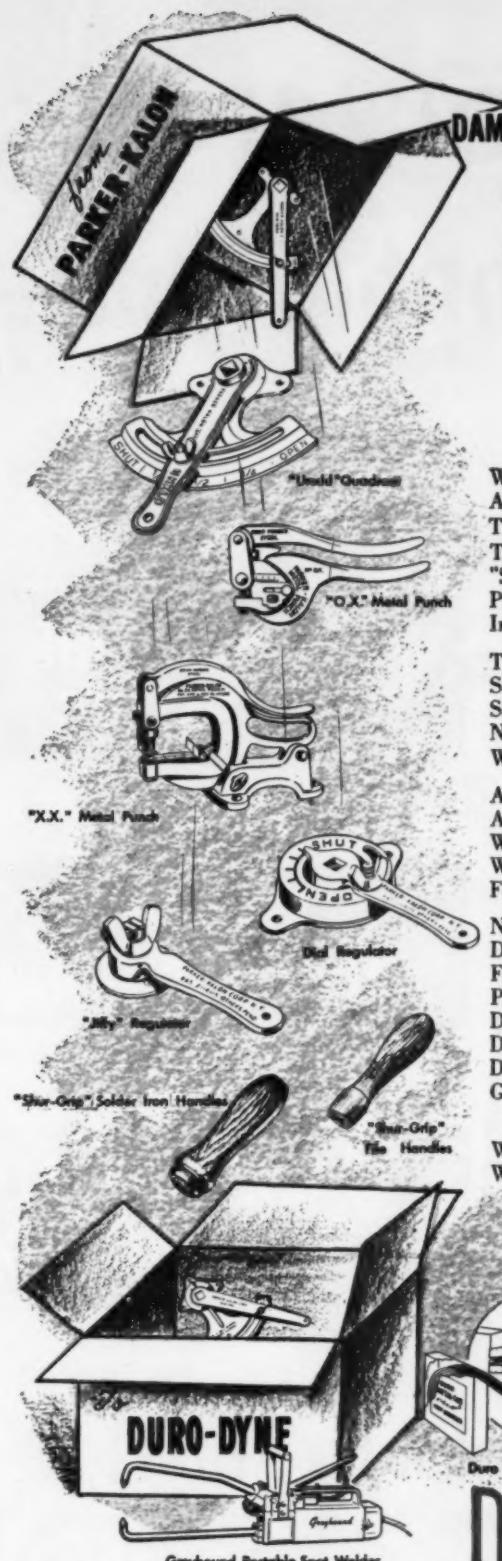
During the course of conducting tests with registers or diffusers at each of the three locations, the supply-air velocity was varied by installing different sizes of outlets. Also, with a particular outlet installed, tests were conducted at from one to four rates of flow (cfm). The results of these studies show the individual effects of supply-air velocity and flow rate on air distribution.

Velocity and flow rate studies showed that for the better floor locations (II and III) a change in supply-air velocity had little effect on the air distribution. However, a change in flow rate, with its consequent change in the temperature of the supply air, had a relatively large effect on the air distribution, which was better at the higher flow rates.

## Effect of Crawl Space

Of the tests listed in the table, six were conducted under special conditions to evaluate the effect of: (1) reduced basement space temperature; and (2) storm sash on the windows.

Tests Nos. 10 and 30 were conducted with a 40 F basement space temperature to simulate an unheated crawl space beneath a room. The results were then compared with those of equivalent tests with a heated basement, tests Nos. 11 and 31. For the crawl space condition, the temperature variations between the 4 in. and 60 in. levels were about 3 F higher, the floor surface temperatures (*This article continued on pages 124 and 127*)



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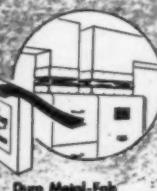
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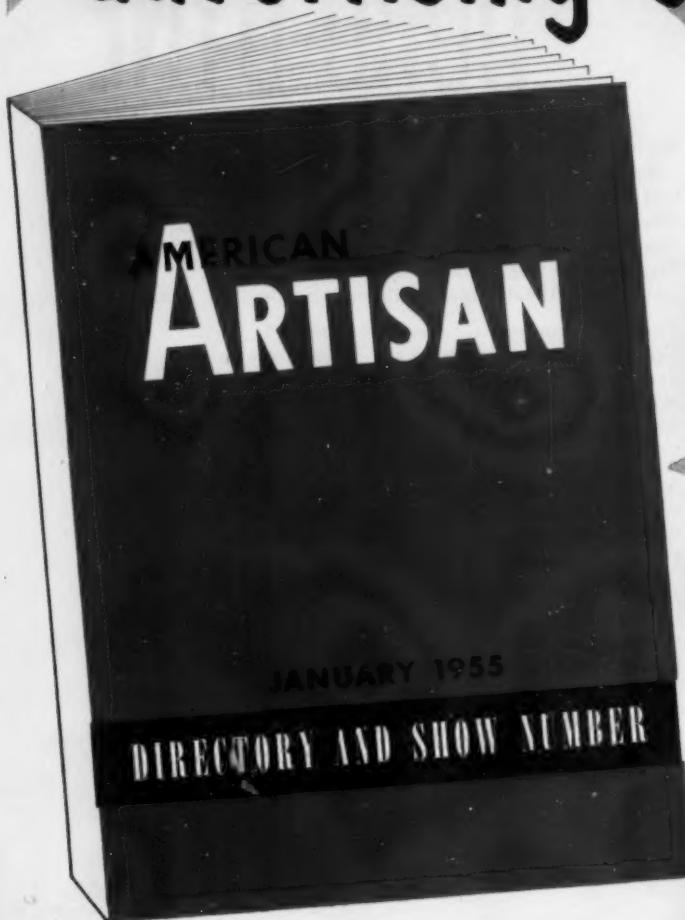


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### DIRECTORY SECTION



All applicable products will be listed alphabetically — with names and addresses of the manufacturers indicated. Products advertised in the January Issue will be classified separately, together with the names of the firms advertising them. All known trade names will also be listed in this comprehensive, up-to-date reference work.

### SHOW SECTION



Subscribers will find in the January Artisan a complete preview of the approaching 12th International Heating, Ventilating and Air Conditioning Exposition. A listing of all exhibitors and their products, a handy guide to the displays, and program information will be included.



### REGULAR CONTENT

Like all other issues, the January Directory and Show Number will carry a full quota of timely articles — insuring immediate cover-to-cover attention. As the field's No. 1 publication since 1864, American Artisan is relied on for its **practical** editorial content.

Do an adequate job in the January American Artisan, and all next year its **lasting** influence will work in your behalf — producing inquiries, promoting sales. Consider the value of using

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# Room Air Distribution with Floor Diffusers

(Continued from page 120 • Text continued on page 127)

## STUDIES WITH CONVENTIONAL and diffuser floor supply outlets

Test No.	Test Designation	Outlet Location	Outlet Size	Vane Setting	Control Temp, F	Supply-Air Temp, F	Supply-Air Velocity, fpm	Flow Rate, cfm	Air Changes per Hour	Temp. Variation 4-in. to 60-in. levels, Deg F
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1	H201	II	6x12	H	75	134	380	129	3.7	13.5
2	I201	II	6x12	H	73	73	348	133	2.6	0.0
3	H202	II	6x8	H	76	133	549	125	3.6	13.2
4	H203	II	4x10	H	75	136	707	127	3.6	13.1
5	H204	II	4x6	H	75	135	1210	127	3.6	11.2
6	I204	II	4x6	H	71	71	1040	123	3.3	0.0
7	H212	II	8x12	H	75	108	467	224	6.4	10.2
8	H213	II	6x12	H	75	107	628	224	6.4	9.5
9	C213 D	II	6x12	J	76	57	582	228	6.5	1.9
10	CS213 D	II	6x12	J	75	115	655	227	6.5	9.5
11	H213 D	II	6x12	J	76	106	645	227	6.5	6.6
12	H214	II	6x8	H	76	106	946	228	6.5	8.0
13	H223	II	8x12	H	75	97	634	310	8.9	6.8
14	C224	II	6x12	H	75	59	795	312	8.9	0.2
15	C224 D	II	6x12	J	75	60	813	313	8.9	0.0
16	H224	II	6x12	H	75	100	852	309	8.8	6.5
17	H234	II	8x12	H	75	97	852	415	11.8	7.2
18	I234	II	8x12	H	73	74	824	417	11.9	0.0
19	H301	III	6x12	H	75	134	374	127	3.6	13.7
20	H301 D	III	6x14	J	76	132	315	123	3.5	9.6
21	H303	III	4x10	H	75	132	700	126	3.6	12.8
22	H303 D	III	4x10	J	75	128	748	130	3.7	8.3
23	SS303 D	III	4x10	J	75	127	717	122	3.5	7.5
24	H304 D	III	2x14	J	75	134	861	125	3.6	7.9
25	C312 D	III	6x14	J	76	55	494	226	6.4	3.8
26	C313	III	6x12	H	76	56	576	228	6.5	0.1
27	H313	III	6x12	H	75	104	627	225	6.4	8.9
28	SS313 D	III	6x12	H	75	103	632	227	6.5	8.4
29	C313 D	III	6x12	J	75	55	578	227	6.5	1.4

## STUDIES WITH CONVENTIONAL and diffuser floor supply outlets (concluded)

Test No.	Test Designation	Outlet Location	Outlet Size	Vane Setting	Control Temp, F	Supply-Air Temp, F	Supply-Air Velocity, fpm	Flow Rate, cfm	Air Changes per Hour	Temp. Variation 4-in. to 60-in. levels, Deg F
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
30	CS313 D	III	6x12	J	75	115	635	227	6.5	9.0
31	H313 D	III	6x12	J	76	107	634	223	6.4	5.7
32	I313 D	III	6x12	J	74	74	610	229	6.5	0.0
33	SS313 D	III	6x12	J	76	104	639	227	6.5	5.6
34	C314	III	6x8	H	77	56	854	228	6.5	0.1
35	C314 D	III	4x12	J	75	56	882	228	6.5	0.0
36	C316 D	III	6x12 <sup>a</sup>	J	76	56	710	228	6.5	0.2
37	C322	III	10x14	H	75	60	400	314	9.0	0.0
38	H323	III	8x12	H	75	98	648	312	8.9	8.8
39	C323 D	III	6x14	J	75	61	668	312	8.9	0.1
40	H323 D	III	6x14	J	75	99	746	311	8.9	5.3
41	SS323 D	III	6x14	J	76	98	737	309	8.8	4.6
42	C324	III	6x12	H	75	60	802	315	9.0	0.2
43	H324	III	6x12	H	75	98	850	310	8.8	6.3
44	C324 D	III	6x12	J	75	60	796	312	8.9	0.2
45	H324 D	III	6x12	J	75	99	869	311	8.9	4.5
46	I324 D	III	6x12	I	73	73	837	314	8.9	0.0
47	H501	V	6x12	H	75	138	375	127	3.6	13.9
48	H511	V	12x12	H	75	105	319	226	6.4	11.1
49	H513	V	6x12	H	75	105	638	229	6.5	9.7
50	H513 D	V	6x12	K	75	105	742	227	6.5	7.4
51	H515 D	V	(4x10 (2½x14 )	K)	76	108	730	227	6.5	7.1
52	C522	V	12x12	H	75	62	402	311	8.9	1.7
53	H522	V	12x12	H	75	96	428	310	8.8	9.7
54	C524	V	6x12	H	75	60	801	314	9.0	0.2
55	C524 D	V	6x12	K	75	59	945	315	9.0	0.3
56	H524	V	6x12	H	75	99	855	312	8.9	7.9
57	H533	V	12x12	H	76	92	561	411	11.7	8.4

<sup>a</sup>Part of free area sealed off to provide 710 fpm velocity.

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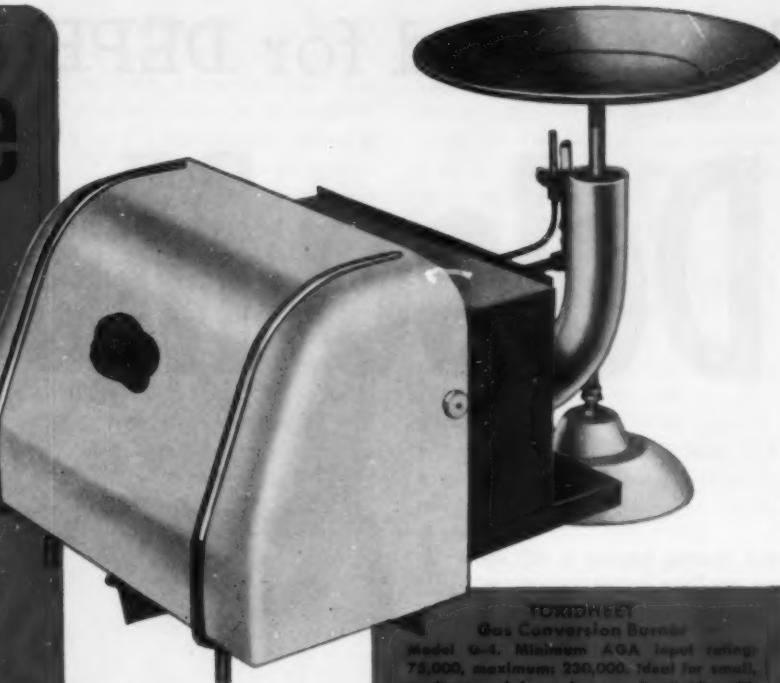
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were about 10 F lower and, of course, the heating load was greater. In other respects the air distribution was about equivalent for the two cases. Therefore, comparable air distribution in crawl space applications evidently can be obtained by keeping the floor surface temperature as high as possible, a condition obtained, for instance, by properly insulating the floor.

### Effect of Storm Sash

The effect of storm sash was evaluated by repeating tests Nos. 22, 27, 31, and 40 with storm sash installed. The results of these tests (Nos. 23, 28, 33, and 41) indicated that the air distribution was only slightly improved by the addition of storm sash. Referring to Col. 11 of the table, the sash resulted in only slight reductions in temperature variations in the room. Other than this, the effect was limited to some small reductions in the downward convection currents directly beneath the windows. From these studies it was concluded that while storm sash is desirable for reducing the heating load, it is not necessarily essential to obtain good air distribution in a room under winter heating conditions of operation.

### Summer Cooling Studies

After analyzing the results of the winter heating studies, 16 tests were conducted under summer cooling conditions. Of these, 10 were conducted at the location which had provided the best air distribution during heating, location III, and three each were conducted at locations II and V.

Representative results for the cooling studies are shown for test No. 9. The nominal supply-air velocity was 600 fpm and the nominal flow rate was 230 cfm, with a corresponding temperature differential between the supply and room air of 20 F. This test and test No. 11 provide an example of a year 'round system utilizing the same flow rate for winter heating and summer cooling.

By comparison of the data for the tests with both diffusers and registers in location III, it was concluded that good air distribution can be obtained with a 20 F temperature differential with both floor registers and floor diffusers; also, for the optimum air distribution the required supply-air velocity is somewhat less for a register than for a diffuser.

Tests Nos. 37, 39, 42, and 44, which were conducted with a flow rate of about 310 cfm and a temperature differential of 15 F, included diffusers and floor registers as well as variable supply-air velocity. The temperature variations were very small for all of these tests. However, with a register and the higher supply-air velocity, the room air motion was excessively high. Also, the diffusers gave a more uniform room air motion than registers.

Comparison of the results obtained with supply outlets at three different floor locations indicates that the order of preference is location III, II, and V. Therefore, a floor outlet located at the center of an exposed wall (location III) evidently has excellent possibilities of providing good air distribution during year 'round air conditioning.

### Results and Conclusions

1) During year 'round conditions of operation, better air distribution was obtained with floor outlets than with high sidewall outlets.

2) Floor diffusers produced a more uniform air motion and a lower temperature variation during heating than floor registers. Diffusers were especially effective in the unrestricted location near the center of the exposed wall.

3) With floor outlets and winter heating conditions of operation, an increase in supply-air velocity produced only a slight improvement in the air distribution. However, an increase in flow rate, with a subsequent lower supply-air temperature, resulted in a significant improvement. With a high sidewall outlet, either an increase in the supply-air velocity or the flow rate produced a significant improvement.

4) The best air distribution during cooling was obtained with outlets located near the center of the exposed wall. Under these conditions good air distribution was obtained with a temperature differential as large as 20 F.

5) To obtain optimum air distribution during cooling, a higher supply-air velocity was required with floor diffusers than with floor registers.

6) For the simulated crawl space conditions, the floor surface temperature was much lower and the temperature variation somewhat higher than those obtained under comparable heated basement conditions.

7) Storm sash installed on the windows resulted in only slight improvement in the air distribution.

8) Results obtained during isothermal studies cannot generally be interpreted as predictions of the air motion in a room under either winter heating or summer cooling conditions of operation.

9) A floor outlet located at the center of an exposed wall has excellent possibilities of providing good air distribution during year 'round air conditioning, particularly if the flow rate used during summer cooling is also used during winter heating.

### Acknowledgment

This paper is a report of one phase of a research program being conducted under the terms of a cooperative research agreement between the American Gas Association (PAR Plan, AGA Project DGR-2-AC) and the Engineering Experiment Station of the University of Illinois. The broad objective of this research program, which was initiated in October 1947, is the improvement of air distribution systems for year 'round air conditioning. The material presented in this paper will ultimately comprise part of a University of Illinois Engineering Experiment Station Bulletin.

Acknowledgment is made for the advice and counsel rendered by the AGA Technical Advisory Group.

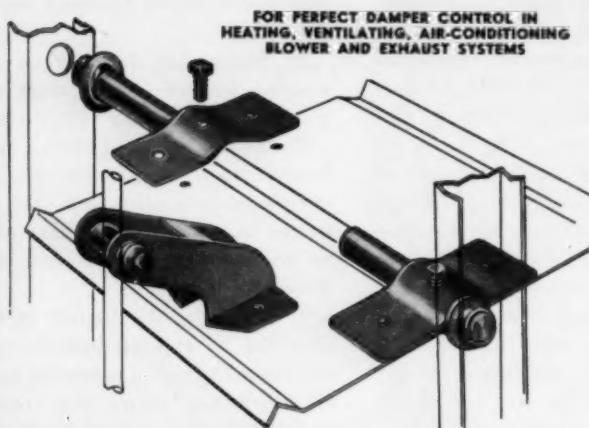
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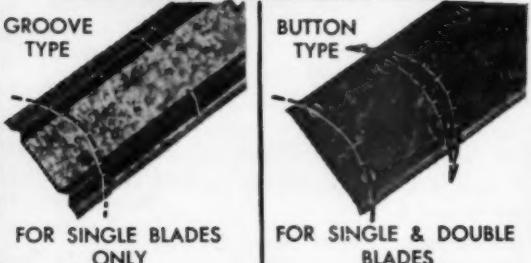
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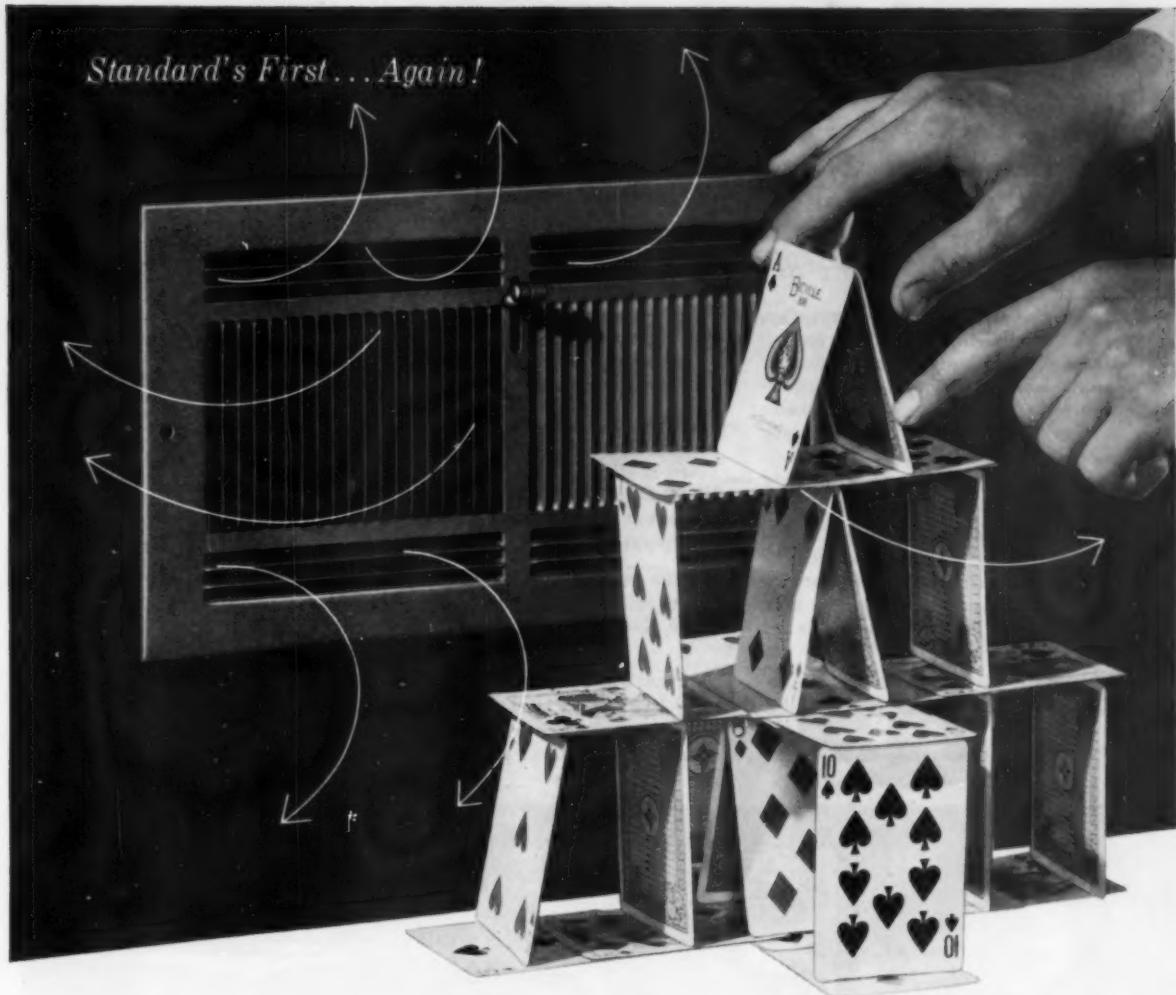
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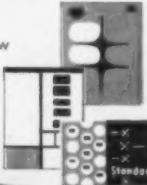
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Feature for feature, dollar for dollar, Norge Heat's the hottest line on the market today. The line you'll be glad you're selling, not selling against!

*If you're not selling Airline Heat a year from now—you'll wish you were!*



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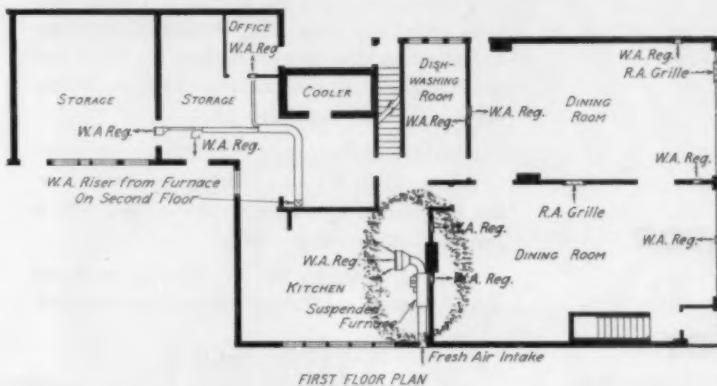


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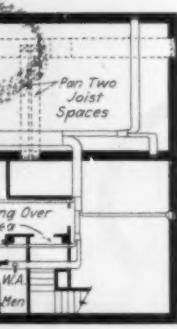
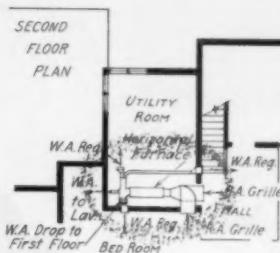
# Triple-Barreled Installation For Hard-to-Heat Restaurant

... built over a partial basement and containing living quarters, dining rooms and other areas — all with different heating needs. Three warm air furnaces do the job



FIRST FLOOR is divided into a variety of areas with different functions and different heating requirements. One of the heating units is installed on this floor, in the kitchen

SECOND FLOOR, which contains the owners' apartment, houses a heating unit in the utility room. This suspended furnace heats the second floor plus those areas on the first floor located over unexcavated ground



IN THE BASEMENT is the unit which heats the dining area on the first floor. First floor office and storage rooms were not heated from the basement because this would have required ductwork to be exposed in first floor rooms and passageways

By Alice Holton  
Perfection Stove Co.

HEATING A RESTAURANT — with its variety of comfort and health requirements in different areas (such as the kitchen and dining room) — is always a challenging job for a warm air heating, residential air conditioning and sheet metal dealer. But heating Sorn's Restaurant — a project undertaken by the Reserve Sheet Metal Co. of Cleveland — required even more ingenuity than usual. This structure is built over a partial basement and contains living quarters on the second floor.

L. Weintraub and R. Landau of the Reserve company, who planned the installation, solved the problems involved by specifying three different furnaces (two of them suspended type units) and carefully laying out the ductwork so that the system could be fitted into the existing building without extensive remodeling.

## Three Heating Zones

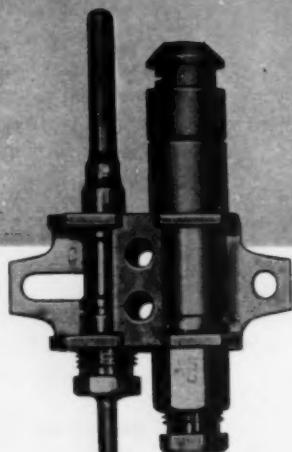
It was found that the structure could be divided into three areas, each having different heating requirements and each of which could be heated by a separate furnace.

First of all, there is the restaurant itself, a 32 x 40 ft area divided into two main rooms (see first floor plan). This dining area calls for a winter temperature of 72 F and a continuous circulation of warm air because of the constant opening and closing of the entrance door.

(This article continued on page 134)

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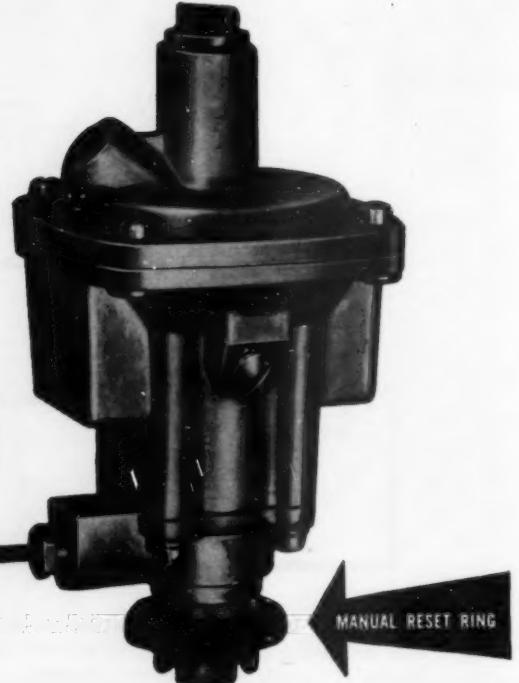
The THERMAC SR-100 offers finest gas control because the regulator is basically our famous T Series, of which millions are in daily operation. The time-proven thermo electric safety unit has been added and in so doing the appliance manufacturer can save several dollars on his actual cost because it eliminates the need for an electric relay or separate automatic pilot.

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# Heating a Three Zone Restaurant

(Continued from page 131)



TO HEAT DINING ROOMS on the first floor, this 125,000 Btu gas fired furnace was installed in the basement



A SUSPENDED, 85,000 Btu gas fired furnace was used to provide warmed outside air for the kitchen

## Two Problem Areas

The second area, the kitchen, presented another type of problem. It is not difficult to heat this area, since the cook stoves take care of a large part of the heating requirements. However, some way had to be found to pre-heat the air coming into the kitchen to replace air removed by the exhaust fans. If this replacement air were to come in cold, it would cool the food being prepared and chill the kitchen workers, resulting in dissatisfied customers and employees as well as time lost due to colds.

Another problem area which it was felt could be served by a single heating unit comprises the owner's apartment over the restaurant (see second floor plan) and an office and storage rooms on the first floor

located over an unexcavated area. The desired temperature in the office is 72 F, in the storage rooms, 60 F.

## Different Units for Each Zone

For the dining area first mentioned, a 125,000 Btu per hr gas fired furnace was selected and installed in the basement. With this unit, there is continuous circulation of warm air, and floor areas are kept warm, counteracting cold drafts from the door.

To provide warmed outside air for the kitchen, an 85,000 Btu gas fired horizontal furnace was installed, suspended from the ceiling to be out of the way of the busy floor operations below. An inside-outside thermostat adjustment is set for the gas to come on only when the outside temperature drops below 40 F. The

equipment is designed to provide ventilation only when outdoor temperatures are above this figure.

## Suspended Unit for 2nd Floor

The third area mentioned, consisting of the owner's second floor apartment and parts of the first floor, is heated by a 65,000 Btu gas fired furnace suspended from the ceiling of the utility room (see second floor plan). Because the section beneath the first floor office and storage rooms is unexcavated, it was considered undesirable to heat these rooms from the basement, since this would have required ductwork to be exposed in the corners of rooms.

This triple-barreled installation has provided for the comfort of all the people involved—patrons, workers and owners.

## FHA Authorizes New Service to Home Buyers

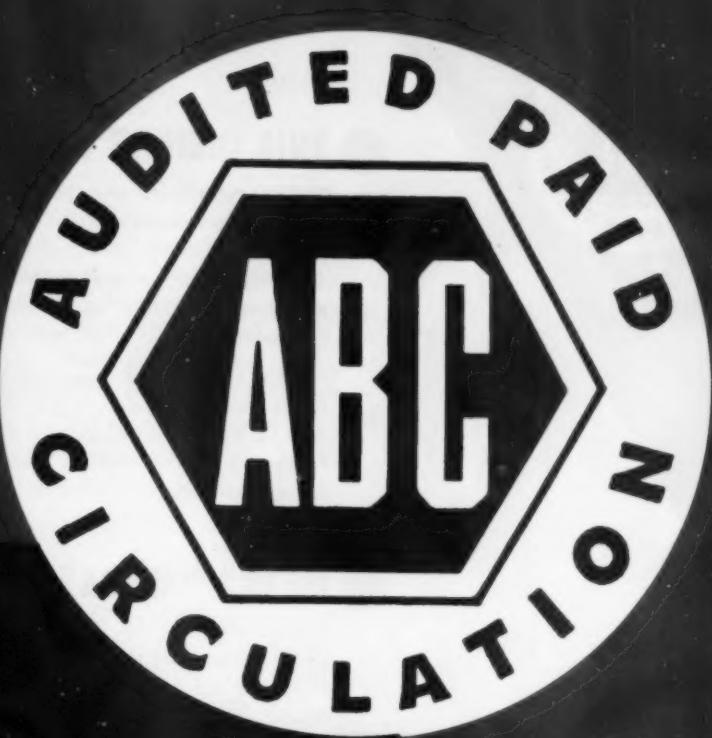
FEDERAL Housing Commissioner Norman P. Mason describes the recently authorized "open-end" mortgage as a "new kind of credit to improve the quality of America's houses." He said that the FHA has already issued

its rules and regulations making the new service available to the home buying public in accordance with the Housing Act of 1954. He explained that the new tool is an ordinary FHA-insured mortgage with an additional

arrangement under which the home owner may borrow back from the lending institution up to the amount of the original mortgage in order to improve his home.

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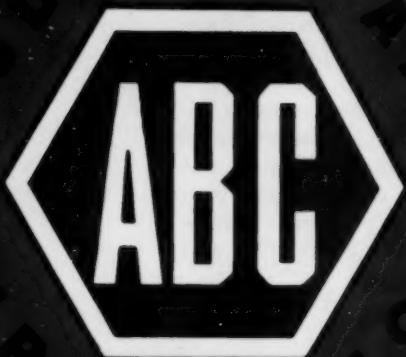
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By Albert W. Gray

TALK OVER the terms of your lease  
with your legal advisor before signing

### When You Sign a Lease...

Make sure any restrictions on use of  
the property are clearly defined along with  
your responsibility for repairing it,  
paying damages and evicting former tenants

A LANDLORD sued recently in one of the southern states to compel a tenant who had overstayed the term of his lease to vacate the property. The building had been leased to a new tenant and the former occupant refused to move.

The landlord contended that since under this lease he had agreed to give the new tenant exclusive possession, he was under the obligation of ousting the former tenant. Holding that the landlord had no duty in this respect the court said:

#### Tenant Must Remove Trespassers

"We are of the opinion that the landlord was under no duty and therefore had no right to institute the action since it was solely for the benefit of the new tenant who had a legal right to the entire possession even as against the landlord himself."

To this statement of the law the court added a comment that contains a helpful suggestion for avoiding circumstances such as these. "Where there is no express covenant to put a lessee into possession, there is no implied

obligation to do so by evicting a former tenant holding over."

While the property is the tenant's for the period set out in the lease, it is the function of the tenant and not the landlord to remove any trespassers, unless the landlord has expressly agreed to do so.

#### Much Leeway in Use of Property

A controversy over restrictions on the right of a tenant in the use of leased business premises recently came before an appellate court. The lease in this instance provided that the tenant would not "sell or permit to be sold on said premises during said term intoxicating liquor, oil or grease of any kind or character."

When the tenant added to his business functions the selling of waste paper, scrap iron, metals and general junk—all in competition with the landlord's business—the landlord sought to prevent the use of the property for any purpose other than those specified in the lease (auto wrecking and automobile parts).

In its decision in favor of the tenant the court said of provisions specifying the purposes for which a tenant may use leased property:

*Albert W. Gray, author of this article, has had over 20 years' experience as an attorney in the courts of New York City. He has written widely on legal matters and is the author of *The Family Legal Adviser*.*



# The bandwagon's rolling... better jump on now!

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The profit-parade's started! Don't let it pass you by! Right now our big new advertising campaign is telling your customers:

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Call your Fiberglas Dust-Stop filter distributor and order your free supply of money-making sales helps—window banners, sales letters, newspaper ad mats, envelope stuffers, radio and TV commercials, and other material. Particularly important is the Jiminy Filter display that's featured in all of our advertising. Set it up in a prominent place—he'll remind your customers that here's the place to buy.

Remember . . . with cold weather just around the corner, millions of folks will

soon be needing new filters. Get ready to share these special profits today . . . before somebody else grabs them first!

Owens-Corning Fiberglas Corp., Toledo 1, Ohio.



\*Fiberglas and Dust-Stop are trade-marks (Reg. U.S. Pat. Off.) of Owens-Corning Fiberglas Corporation for products made of or with fibers of glass.

"A provision in a lease authorizing use of property for a certain purpose is generally regarded as permissive instead of restrictive and does not limit the use for similar or related purposes so long as there does not result an injury to the landlord's rights nor violation of some statute or ordinance which would subject the lessor to liability."

#### Need Express Language for Restriction

A lease of business property in an eastern city contained the clause that the tenant, "will use and occupy the leased premises only for their business of paper." When the tenant sought to install machinery for the manufacture of paper boxes the owner protested that such business was a violation of the provisions of the lease, contending that the property should be used only for the business conducted at the beginning of the term of the lease.

In its refusal to adopt this interpretation the court said: "In the absence of clear language indicating a restriction in use, the tenant has a right to use the property for any lawful purpose for which it is adapted. In order to establish a restriction express language or language from which a restriction is clearly implied must be shown, since the law does not favor raising by implication a covenant restricting the beneficial use of property."

#### Tenant Takes Premises as He Finds Them . . .

While the courts are slow to interfere with the use and enjoyment by a tenant of property he has leased, he cannot look to his landlord for repairs to the property unless it is so provided in the lease.

"At common law," said a court in a decision frequently followed as an authority, "in the absence of express covenants to the contrary, the landlord is under no obligation to keep the premises in repair and the tenant takes them as he finds them."

#### And Is Responsible for Customers' Safety

The importance of this rule lies not only in the obligation it imposes on the tenant in the care of the property itself, but also his obligation for the safety of customers while they are on the premises.

A lease of business property contained the clause, "The landlord agrees to make all the necessary repairs to the store, putting same in first class condition, and agrees to repair surfaces of parking lot, putting same in first class condition."

A parking sign nailed to two upright posts, left by a previous tenant, had been removed by sawing off these posts a few inches above the ground. A customer of the store tripped over one of the stumps, was severely injured and recovered a judgment against the tenant for \$10,000.

The tenant sued the owner to recoup this loss, claiming that the landlord was liable for this dangerous condition of the premises by virtue of the covenant contained in

this lease. In its decision in favor of the landlord the court said:

#### Landlord Pays for Repairs, Not Accident

"Ordinarily a landlord is not required to put the leased premises in good condition at the beginning of the lease or to keep the premises in repair unless he specifically agrees to do so."

Then, in reference to the provisions in the lease under which repairs were to be made by the landlord, the court said, "What is the measure of damages to which the landlord must respond for the failure to perform the agreement to put the surface of the parking space in good condition? The general rule is that in such a case the landlord is liable only for the cost of repairs, any loss of use which the tenant may have suffered from the breach and any special damages that are reasonably within the minds of the parties.

"None of these conditions of liability are found in this case. The cost of the repairs was borne by the landlord, who remedied the defect after the accident happened. There was no interference with the tenant in the use of the property and it cannot be said that the loss suffered by the tenant in paying the judgment was within the contemplation of the parties."

#### Lease Should Cover Destruction of Property

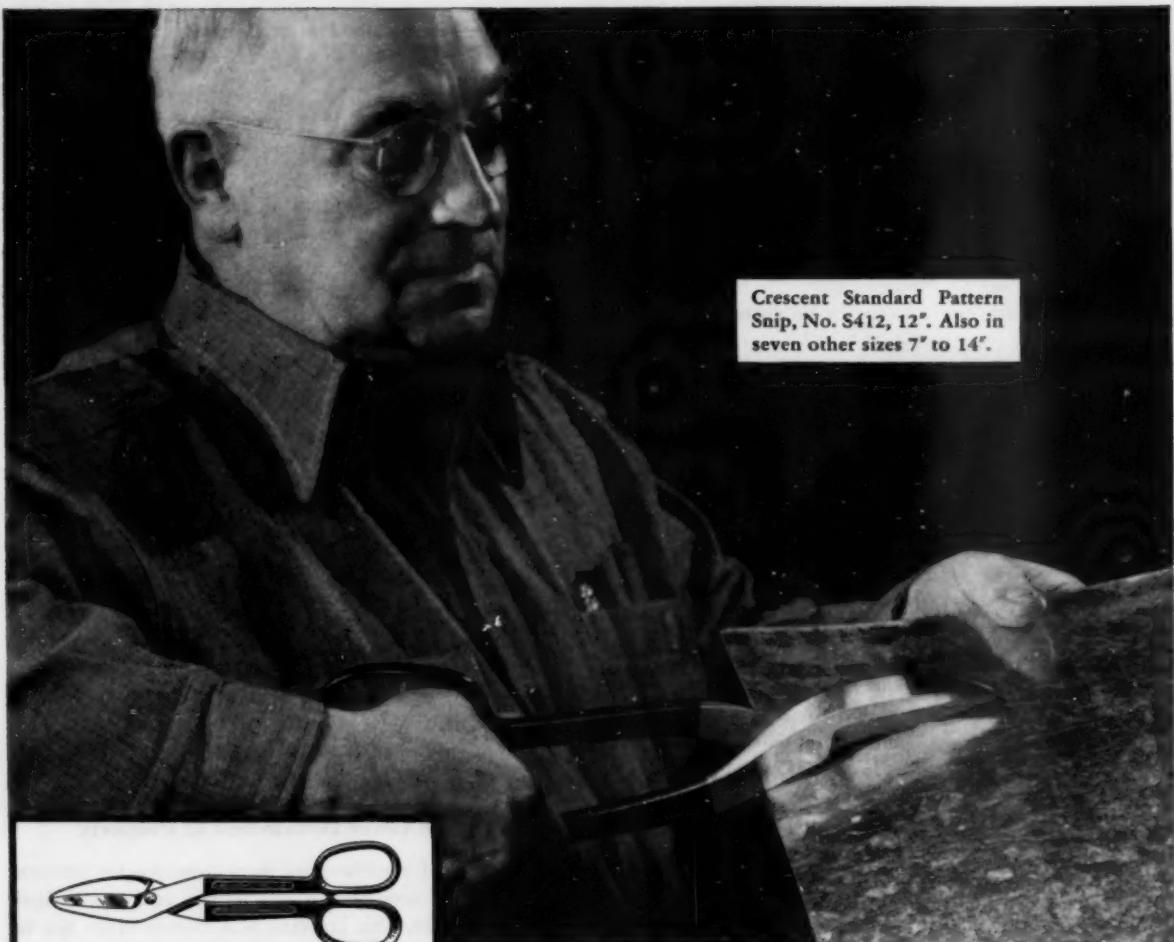
The lease of a midwestern store provided for payment in advance of semi-annual rent on the first day of April and of October. The building was destroyed by fire on May 28th. In its decision that the landlord was entitled to rent only to the date on which the building became unfit for further use as a store, the court said:

"The law seems to be well established that the rent paid in advance cannot be recovered by the tenant on the destruction of the premises unless the contract provides that it shall be paid back." The court added, however, that none of the decisions go to the extent of holding that if the rent has not been paid when the building is destroyed, the landlord can recover.

"At common law," said the court, "a tenant of premises which are accidentally destroyed subsequent to the making of the lease cannot be relieved from an express covenant to pay rent unless he has stipulated in the lease for a cessation of the rent in such a case, or the landlord has covenanted to rebuild.

"There is a well recognized exception to this general rule to the effect that where performance depends on the continued existence of the building leased and the building is destroyed so that it cannot be used for the purposes for which it was leased, the consideration for the contract fails and the tenant is no longer obligated to pay rent on the building."

[Note: While this discussion applies to actual cases, it should be remembered that legal rules vary in different states.]

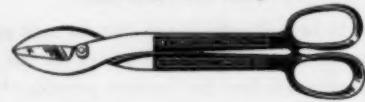


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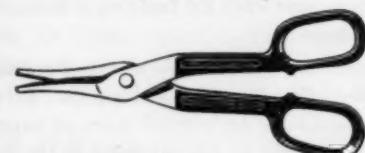
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# What Do You Say?

You are invited to express your views — for publication here — on matters of interest to those concerned with residential air conditioning, warm air heating and sheet metal contracting. Address your comments to the Editor, American Artisan, 6 N. Michigan Ave., Chicago 2

**E. K. CAMPBELL —**

## “I’d Use Crawl Space for Return Air”

I HAVE READ with interest the article in the April Artisan, *Solving Crawl Space Heating Problems*, by S. Konzo and H. T. Gilkey, and I believe that I can add a little light on the subject that will be of value to some of your readers.

I certainly believe in the use of the crawl space, only I believe in reversing the direction of the air motion from that indicated in this article so that the crawl space will be used for return air rather than as a warm air plenum. I assume that the article applies only to one story residences with the crawl space and an attic that is not particularly used. I designed such a system for my daughter and her husband living in Grandview, Tex. It utilizes the conventional updraft furnace carrying the heated air through the ceiling and into the attic space, and distributing through the ceiling through diffusing registers. It would be possible, if someone thought it necessary to do so, to throw the heated air toward the outside walls, but I think it is objectionable to do so.

I located the return air registers in the floor, near the outside wall, taking one from each room and making them extra large in capacity to keep the velocity of air moving through them at a low point. The duct distributing system is in the attic and entirely out of the way.

This system solves several of the possible objections which are mentioned in the article. Dust and dirt can fall through the floor registers and accumulate in the crawl space — of course it will do so — but what difference does it make? Dust is only picked up after air reaches a certain velocity. If it is carrying dust when it goes down through the return air register, it soon loses that velocity by mixing with the air of the crawl space, and as it loses that velocity, it will drop the dust. Dust will then settle on the floor of the crawl space, but it will not be distributed by the air movement at that level.

Another possible objection is to the temperature of the crawl space when it becomes a warm air plenum, and I think that is a real objection and cannot be met by that system. It will certainly cause the floor and the timbers to shrink and open cracks because it is almost impossible to put enough moisture into the air to prevent this without having trouble with moisture up in the living room, particularly in cold weather.

In case of the reverse system of using the crawl space for the return air suction chamber, the temperature of the space is slightly below the temperature of the floor

above, not enough to affect the temperature of the floor itself, and in fact it is a warmer floor than those maintained by most of the other systems. This was demonstrated by the fact that on one visit I made there in cold weather, a year-old baby would lie down on the floor and go to sleep and be perfectly comfortable. The house was not overly heated to accomplish this result.

I believe such a system is as economical in fuel as any can be. I just wanted to suggest that the cycle be reversed to use the crawl space for a return air suction chamber instead of a warm air plenum. When this is done, these possible objections which are advanced as applying against the crawl space plenum system are automatically removed.

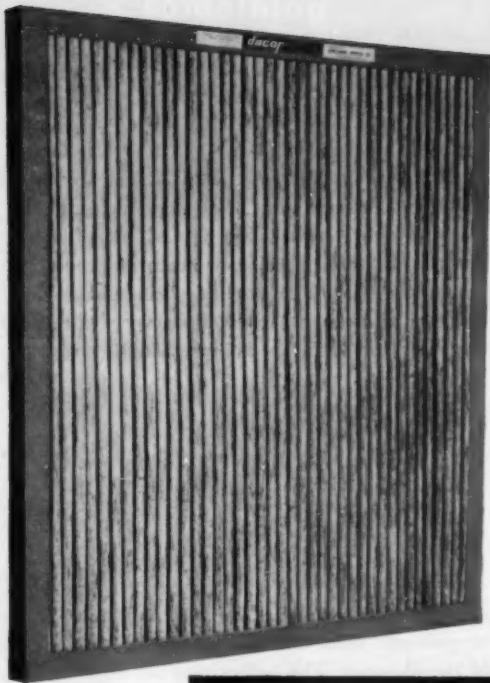
**E. K. CAMPBELL, PRESIDENT, E. K. Campbell Co., Kansas City, Mo.**

### The Author Replies:

USING THE crawl space as a return air plenum is not an entirely new idea, and it certainly does have some merit. With this system, the floors will be warmer than for either an unheated or ventilated crawl space, and many of the difficulties which may be encountered with the crawl space used as a warm air plenum will be eliminated. In climates more severe than that experienced in Grandview, Tex., the warm floors obtained with a crawl space perimeter system would be desirable from two standpoints. One of these is comfort, and the other is the panel heating effect of the warm floor. Furthermore, it has been found that registers placed in the perimeter location maintain excellent room air temperature conditions in all climates.

Of course, the authors of these articles are not necessarily advocating the use of the crawl space plenum system. It has been found, however, that the crawl space plenum system does an excellent job of heating a home, and the intent of the articles is to point out some of the problems which have been encountered with this system to suggest possible solutions for them. We believe that most of the problems mentioned by Mr. Campbell can be solved successfully if proper attention is paid them by both the heating and building contractors.

**HERBERT T. GILKEY, Research Associate in Mechanical Engineering, University of Illinois**



pat. pending

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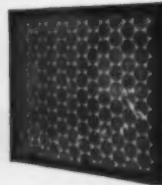
Dacor also removes smoke irritants, pollen and dust particles. Smog and other industrial pollutants which come in from the outside, hence cannot be ventilated, are removed by the Dacor. Dacor, in fact, is the only effective method for handling the smog problem.

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Write for our  
new CATALOG.

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NILES, OHIO

## equipment developments

(From page 54)

mediately closes, according to the manufacturer. The valve is available in sizes of  $\frac{3}{8}$  to  $\frac{3}{4}$  in. IPS.

### Redesigned Chimney Top

REDESIGNED CHIMNEY TOP for the "Thulman" pre-fabricated chimney, now 1 in. larger in both horizontal dimensions and featuring new rain cap and shield design — The Majestic Co., Inc., 733 Erie St., Huntington, Ind. These new features provide 50 per cent more free area for flue gas escape and give the top a more massive appearance, the manufacturer states. The cap is designed to provide com-



plete protection from rain, and baffles are arranged to prevent water-and-soot stains down the outside of the chimney. The baffles also act as stabilizers for the top of the flue. The top, which is UL approved, is available for either one or two flues. The chimney itself may be installed with zero clearance to combustibles and is factory fabricated of steel with a double coat of vitreous enamel for the central flue, which is surrounded by two aluminum ducts.

### Air Conditioning Units

SERIES WAC summer air conditioning units in 2 and 3 ton sizes, designed as twin units for a highboy forced air furnace — Mayflower Air-Conditioners, Inc., E. 7th at Duluth Ave., St. Paul 6. Units are water cooled. Dimensions are  $27 \times 28 \times 61\frac{1}{2}$  in. A 20  $\times$  25 in. replaceable filter and filter rack are integral. The blower is rubber mounted. Other features include a hermetically sealed compressor and a capillary tube system.

### Motor Starting Relay

TYPE ARR-1 motor starting relay designed to be small and low in cost, for starting single phase capacitor start and capacitor start capacitor run fractional horsepower motors — General Electric Co., Schenectady 5. It is particularly applicable where adverse atmospheric conditions exist as encountered in industrial ventilation systems or where it is desired to have remote control incorporated into an explosionproof case, according to the company. The relay can be used to replace the centrifugal motor switch. The relay coil is wired across the starting winding of a single phase motor. In operation, the relay picks up only when the motor comes up to speed, increasing

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Clean, safe and economical. No messy oils or adhesives; no added fire hazard. Flushes clean with water, yet absolutely rustproof. "Lifetime" construction. Exclusive filter media catches and holds more dirt; permits better heating efficiency.

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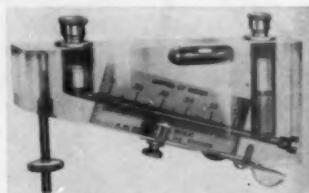
equipment developments

(Continued)

the induced voltage in the starting windings. It is available in ratings up to 5 hp, 115 or 230 volts.

Draft Gage

MODEL 172 draft gage designed to aid in achieving correct air flow by measuring static pressure drop across the evaporator in residential air conditioning systems — F. W. Dwyer Mfg. Co., 317 S. Western Ave., Chicago 12. It is a tool kit size instrument for use on the job, is quickly attached or detached and is breakproof and permanently accurate, the company



states. The gage is designed to measure 0 to 1 in. water pressure on a 3 in. scale calibrated in 0.02 in. divisions. After the gage is attached, the blower speed is adjusted until the pressure drop reading corresponds with the manufacturer's recommendation. The instrument is also suitable for determining furnace draft, filter conditions, etc.

Decorative Grille for Window Units

"WINDO-GRILLE" aluminum grille of oak leaf and acorn design, intended to screen the exterior of win-



dow type air conditioning units — Tennessee Fabricating Co., 1490 Grimes, Memphis 6. The grille is attached with a screw driver, the company states. It has a high gloss white enamel finish and is adjustable to fit all types and sizes of windows.

Low Temperature Warning Device

"ALARM-A-LITE" signal device which lights a flashing red lamp if the temperature in the home drops below a safe level — Custom Mfg. Co., 4105 W. Fullerton

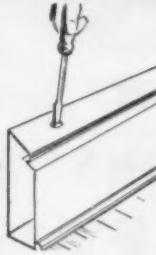
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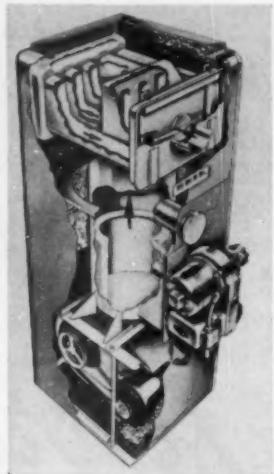
**equipment developments**

(Continued)

Ave., Chicago 39. It is designed for use in homes which have automatic control of either gas, coal or oil heating systems and which owners wish to leave for a protracted period of time. If unforeseeable factors, such as a lack of fuel supply, result in extreme temperature drops, the lamp (placed near any window) will be observed by neighbors and passersby. It is not noticeable unless flashing.



Above: Temperature  
Warning Signal



Right: Winter  
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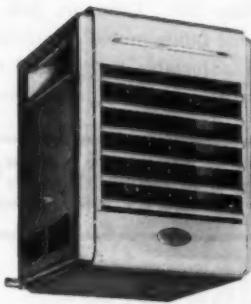
**Highboy Winter Air Conditioners**

MODELS UF-2 oil fired and UFG-2 gas fired highboy winter air conditioners, designed to provide automatic central heating for a wide range of residential requirements — The Heil Co., 3000 W. Montana St., Milwaukee 1. Features include added heating surface protection against expansion noises, and improved construction designed to eliminate common causes of corrosion within flue tubes, the company states. Heat exchangers are of octagonal design. The oil fired unit is rated at 112,000 Btu per hr at the bonnet; the gas fired unit, at 125,000 Btu input. Models are convertible from one fuel to the other.

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new members  
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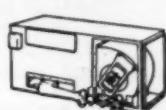
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You liked our 50 UF suspended unit heater so well when we introduced it last season, we've expanded the line to include 6 models in all. The 4 new ones are in capacities you've asked for—75, 100, 125 and 150 thousand BTU.

This increased line assures you the right size for any unit heating job. All 4 have been compactly styled to follow the popular 50 UF design. The 225,000 BTU model retains its former highly accepted design for larger installations.

These attractive unit heaters offer the perfect solution to problem commercial installations where high heating power is needed, but where the heating unit must be handsome and compact.

Check these advantages: porcelain enameled heat exchangers; low 24-volt controls; slow speed motor for whisper-quiet operation; high efficiency heat exchanger; pull-chain switch for summer ventilation; fully automatic; AGA-approved. You'll see why these competitively priced Utility Unit Heaters will help you sell the job and keep your customers happy!



See the complete UTILITY heating and air conditioning line now

GAFFERS & SATTLER AND OCCIDENTAL  
Automatic Gas Ranges  
UTILITY  
Furnaces • Air Conditioners  
Air Coolers • Water Heaters

a happier living family tree...  
all branches of



UTILITY APPLIANCE CORP., Dept. AAH-10  
4351 S. Alameda St. • Los Angeles 58, Calif.

Please send me full information on:

- Utility Automatic Heating and Air Conditioning Equipment
- Utility Cooling Equipment
- Utility Automatic Gas Water Heaters

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ ZONE \_\_\_\_\_ STATE \_\_\_\_\_

over 2000 lb bursting pressure. Large models have been designed for refilling with silica gel. A twin unit is offered for 5 and 10 ton units.

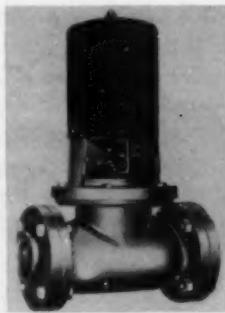
**Blower Wheel**

**BLOWER WHEEL** designed to provide trouble free operation in heating and air conditioning applications — Mayne Products Co., 324 Harries Bldg., Dayton 2. Built in eight parts, the wheel features simplified construction and quieter operation, the company states. There are two blade louvers, two center discs, two hubs and two set screws. The wheel requires only two stamped strips of blades. One blade section is superimposed upon the other, these being then interlocked and welded into one unit.

**Motorized Gas Valves for Furnaces**

LINE OF motorized valves for automatic fuel control of gas fired furnaces and other gas combustion systems — Eclipse Fuel Engineering Co., 1017 Buchanan St., Rockford, Ill. Features include a two wire motor operator, neoprene seat construction and a lightweight aluminum body. The spring loaded plunger and the neoprene seat are intended to assure fast, positive shutoff in case of electrical failure. Motor and plunger assembly can be removed for

servicing of the valve without breaking line connections. Position of the diaphragm is shown by an indicator on the motor mounting bracket. Sizes now available are 1, 1 1/4, 1 1/2, 2, 3 and 4 in. Flange mountings are furnished as standard equipment.



Above: Gas Valve



Right: Fan Assembly

**Fan Assembly for Wall Heaters**

OPTIONAL FAN ASSEMBLY for use on any of the three models of "Saf-Aire" gas fired wall heaters — Stewart-Warner Corp., U.S. Machine Div., Lebanon, Ind. It consists of a 7 in., five bladed fan mounted on rubber; an automatic control with adjustable range; and the necessary wiring. The assembly can be installed in a

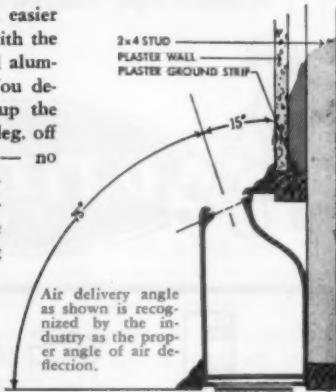
# THE BASE WITH THE BUILT IN AIR CHANGES!



Patent Pending

## "TEMPERING AIRE BASE" *installs for less!*

Now you can do the job quicker, easier and better — for less money — with the only variable air delivery extruded aluminum baseboard on the market. You deliver the air at the right angle up the wall, 75 deg. off the floor and 15 deg. off the wall. No blowing curtains — no streaked walls — no cracking plaster. You can vary the outlet volume under the windows for more heat in winter and more cooling in summer.



"Tempering Aire Base" is supplied packaged for "on the job" use in 3', 4', 6', 8' and 10' lengths with any of the 5 "Magic Ribbon Diffuser" openings. The simplest installation procedure yet developed; no screws, nails or springs — even in cement slab construction.

Extruded for us by the  
Aluminum Co. of America

WRITE FOR DETAILS

**THE HAYES PRODUCTS COMPANY**

P.O. BOX 202

Sales Office: P.O. Box 7195, Richmond 21, Va.

"I shot an arrow into the air,  
It fell to earth, I know not where."

*The Arrow and the Song—Longfellow, 1845*

# Longfellow a space buyer?

Longfellow's lament could well have been applied to advertising back in 1845. Yes, even up to 1914 when a group of advertisers, agencies and publishers, alarmed by the waste and guesswork in their business, brought order out of advertising chaos by organizing the Audit Bureau of Circulations. These pioneers in circulation auditing established a definition for paid circulation, rules and standards for measuring circulation, methods for auditing and reporting the FACTS.

*For value-minded advertisers the era of blind space buying ended in 1914. ☆☆ Today's experienced space buyers use the audited information in A.B.C. reports to aid them in applying media to markets and get full value for advertising dollars. Here are some of the FACTS in*

A.B.C. reports that provide a sound basis for advertising investments:

- How much paid circulation • How much unpaid distribution • Occupational or business breakdown of subscribers • Where they are located • How much subscribers pay • Whether or not premiums are used
- How many subscribers in arrears • What percentage of subscribers renew. ☆☆ Sales messages go direct to their targets, there's no shooting "into the air" when space buyers base their decisions on A.B.C. FACTS. This publication is a member of the Audit Bureau of Circulations because we want our advertisers to know what they get for their money when they use space in these pages. Ask for a copy of our A.B.C. report and then study it.



#### SEND THE RIGHT MESSAGE TO THE RIGHT PEOPLE

Paid subscriptions and renewals, as defined by A.B.C. standards, indicate an audience that has responded to a publication's editorial appeal. With the interests of readers thus identified, it becomes possible to reach specialized groups effectively with specialized advertising appeals.

A.B.C. REPORTS—FACTS AS A BASIC MEASURE OF ADVERTISING VALUE

# Autoflo FUEL OIL FILTER



Model F 300



**EASY** to install **SURE** to satisfy  
**STURDY** trouble-free design  
 eliminates needless callbacks

Guarantee your customers steady, maximum heating efficiency with the Auto-Flo Fuel Oil Filter. All wool felt cartridge filter plus fine mesh screen core removes all dirt, scale, water and foreign matter before they reach the burner, assuring a clean, free-flowing oil supply. Hexagon extensions for easy installation of oil line fittings. One piece cast bowl has strong bolt spud.

Auto-Flo Corp., 14590 Schaefer, Detroit 27, Michigan

Please send me full information on:

- Auto-Flo Fuel Oil Filter
- Auto-Flo "100" Automatic Humidifier

Name \_\_\_\_\_

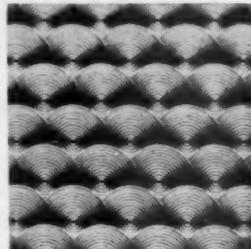
Address \_\_\_\_\_

City \_\_\_\_\_

Zone \_\_\_\_\_

State \_\_\_\_\_

few minutes, the company states. The bottom heater panel is removed, the wiring is connected and the panel is replaced with the fan assembly, which snaps into place. The units themselves burn any type of gas fuel. Sizes offered are 14,000, 20,000 and 30,000 Btu input.



### Sheet Metal with New Pattern

New "I-ET" engine turn pattern for "Rigid-Tex" metal sheets, designed to produce moving highlights when viewed from any angle — Rigidized Metals Corp., 699 Ohio St., Buffalo 3. This light pattern has a maximum pattern depth of 0.025 in., yet resists marring, hides scratches and fingerprints and reduces glare, the company states. The pattern is available in stainless steel, aluminum, carbon steel, brass, copper and all other ferrous and non-ferrous metals. It is offered in widths up to 7 in. in sheet, strip or coil — solid or perforated. The pattern is also designed to save production time and help avoid rejects because it conceals surface imperfections. The patterned metal is fabricated as easily as plain metal, with conventional techniques and machines, the manufacturer reports.

### Heating, Air Conditioning Equipment

LINE OF central cooling units, gas and oil fired winter air conditioning units and an oil burner — Lincoln Furnace Co., Inc., 230-244 Goffle Rd., Hawthorne, N. J. The packaged air conditioning unit is designed for use with all styles and makes of warm air furnaces. Offered in 2 and 3 ton sizes, it dehumidifies as it cools. Highboy and lowboy oil fired winter air conditioners are offered in bonnet output capacities of 75,000, 90,000 and 110,000 Btu. The oil fired counterflow furnaces, in bonnet output capacities of 75,000, 90,000 and 110,000 Btu, can be fired either as downflow furnaces in a vertical position for perimeter heating or as horizontal units for installation in attics, crawl spaces or suspended from ceilings. The Model SP. 100 gas fired lowboy winter air conditioning unit is AGA rated at 80,000 Btu at the bonnet for natural, manufactured, mixed and LP gas. The Series GH gas fired highboy units have AGA bonnet ratings of 40,000, 52,000, 68,000, 80,000 and 92,000 Btu with natural, manufactured or mixed gas, 52,000 and 72,000 Btu with LP gas. The Series GLB furnace is offered in bonnet ratings of 64,000 to 136,000 Btu,

with

## METALBESTOS EYE-OPENERS as your DOOR-OPENERS

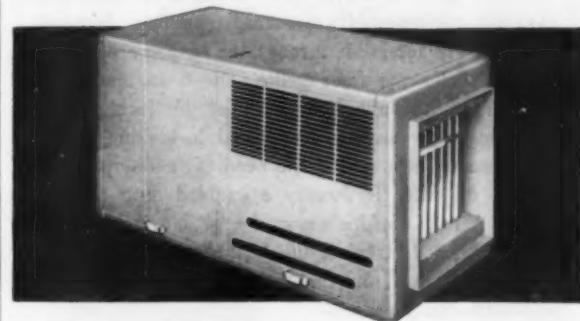
Now the prestige product in the gas venting field brings to your customers, the home-owners, an informative eye-opening explanation of **what** gas heating is all about... **why** their gas heating system should be checked... and **who** will perform this service free (answer: their Metalbestos dealer). It's a natural for building gas heating business and here are the tools to do it:

- a 16-page illustrated booklet that convinces the home-owner of the need for a correct, up-to-date gas heating system.
- dealer newspaper ads to hammer home the importance of having gas heating systems checked.
- dealer mailing pieces that offer your customers the Metalbestos booklet and your check-up services.

Contact your nearest Metalbestos jobber today about these door-opening eye-openers — yours without charge — or write to:



**Easy to Install**  
because it's a complete package  
**Easy to Sell**  
because it's completely enclosed

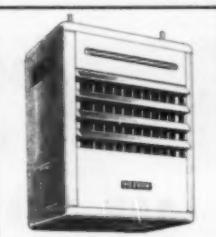


## the Reznor PAC

No exposed controls... no protruding burner... no dangling connections. Everything completely enclosed in a compact appliance-styled cabinet. One look at the Reznor PAC and your prospects will become customers. It's the *only* completely enclosed horizontal furnace.

The same features that make the PAC easy to sell make it easy — and profitable — to install. It comes as a complete package. No outside controls or connections. They're all mounted within the main cabinet. And your job is simplified by the built-in draft diverter and by the ease of conversion from horizontal to vertical flue connections.

Three sizes — 75, 100, and 125,000 BTU. Universal burner for any type of gas. AGA approved for all horizontal furnace applications.



Reznor suspended gas unit heaters are available in nine sizes—25,000 to 250,000 BTU.

Used without ducts, the PAC becomes a deluxe unit heater which meets the most exacting demands for cleanliness, quietness, and fine appearance.

Don't miss your chance to cash in. Write today for your copy of Bulletin GNP-52. The Reznor Manufacturing Co., 53 Union Street, Mercer, Pa.

**REZNOR**  
THE WORLD'S LARGEST-SELLING  
GAS UNIT **HEATERS**

in 10 sizes. The Model B-3 oil burner is designed to fire in a narrow horizontal chamber as well as a wide vertical one.

**Oil Fired Floor Furnace**

MODEL FL81 packaged oil fired floor furnace — Delta Heating Corp., 1 Cole St., Trenton 8. The oil burner and controls are contained inside the model, which is wired, tested and fully assembled before shipment. The floor grille measures 24 × 36 in. to fit floor openings left by replaced vaporizing type floor furnaces. All parts are accessible through the hinged access door located under the floor grille. The 6 in. flue outlet extends out through both sides of the furnace. The draft regulator supplied is placed inside the unused flue opening, eliminating the need for a flue pipe tee. A fuel oil filter is factory assembled onto the fuel pump. A twin turbine squirrel cage fan is built into the furnace to circulate the heated air. The furnace measures 31 in. from top to bottom and heat output is 80,000 Btu per hr.

**Control System for Water Heaters**

"DUAL-SAFE" self-powered automatic control system designed to provide additional safety in the operation of gas fired water heaters — General Controls Co.,

801 Allen Ave., Glendale, Calif. It operates as two separate, independent systems. If temperature is abnormally high, both a thermostatic valve and a thermomagnetic valve close to shut off the gas. There is complete shutoff of gas upon pilot flame failure or overheating of the tank, according to the manufacturer. The unit handles automatic temperature control and pilot operation and gives protection during the pilot lighting procedure, the company states. It comprises a high temperature limit switch, the thermomagnetic valve and a 250 millivolt pilot generator. All-in-one safety, temperature and flow controls are incorporated.

**Gas Fired Furnaces**

"ECONO-FLOW" gas fired furnaces, including basement, counterflow, vertical and horizontal models — Stewart-Warner Corp., U. S. Machine Div., Lebanon, Ind. The first three types are each available in three capacities. Units are designed to burn all types of gas in meeting the needs of small, medium and large homes. They are completely assembled and factory wired. The manufacturer reports that features include an all-steel, all-welded heat exchanger with more than 10,000 sq in. of heat transfer area; a separate steel ribbon type burner for each exchanger; a slow speed blower set in rubber; removable filters; direct air baffles; a pan type bottom; and a built-in draft diverter.



# EFFICIENT *Extended-Surface* HEAT EXCHANGERS

for HEATING • COOLING  
PROCESS • AIR CONDITIONING

## ASK THE AEROFIN MAN

Your Aerofin man's recommendation means high efficiency, long service life, low maintenance costs.

Aerofin's unequalled laboratory and manufacturing facilities — unequalled knowledge of heat-exchange practice — are devoted exclusively to the design and manufacture of highest quality extended heat surface.

**AEROFIN  
CORPORATION**

Aerofin is sold only by manufacturers of fan-system apparatus. List on request.

101 Greenway Ave., Syracuse 1, N. Y.

The Design,  
Engineering+  
Workmanship  
of widely used  
**HANDY  
PIPE**  
and fittings  
mean more  
installation  
accomplishment  
per day—and  
that means  
lower costs  
per job!

F. Meyers & Bro. Co.  
The Handy Pipe People.  
Peoria, Illinois

YOU CAN  
**INSTALL 'EM  
FASTER...**

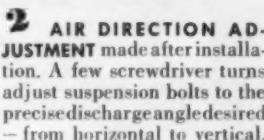
**CONNOR**  
ENGINEERING  
CORPORATION

**kno-draft®**  
adjustable air diffusers

Remarkable mechanical simplicity (see pictures below) enables you to install Kno-Draft Adjustable Air Diffusers in half the ordinary time . . . gets your job OK's a lot faster. And, since Kno-Draft is completely adjustable *after* installation, there's no time wasted trying to figure out everything about air movement in advance.



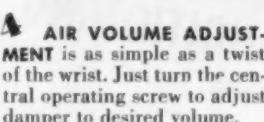
**1** **INSTALLATION** time cut in half, say contractors. Simply attach outer cone to duct, then fasten preassembled diffuser unit to three suspension bolts.



**2** **AIR DIRECTION ADJUSTMENT** made after installation. A few screwdriver turns adjust suspension bolts to the precise discharge angle desired — from horizontal to vertical.



**3** **BALANCING** a Kno-Draft air distribution system is completely simple. Single annular air stream permits easy direct volumetric readings.



**4** **AIR VOLUME ADJUSTMENT** is as simple as a twist of the wrist. Just turn the central operating screw to adjust damper to desired volume.



**CONNOR ENGINEERING CORP.**

Danbury, Connecticut



Also Manufacturers of  
Dorex Air Recovery Equipment

• NEW EDITION! Kno-Draft Data Book now in new 32-page format. Complete up-to-the-minute specifications, engineering and installation data on Kno-Draft Adjustable Air Diffusers. Bring your files up to date. Mail coupon today.

**CONNOR ENGINEERING CORP.**

Dept. S-104, Danbury, Conn.

Please send me the *new edition* of the Kno-Draft Data Book — without obligation, of course.

Name \_\_\_\_\_

Position \_\_\_\_\_

Company \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

## new literature . . .

manufacturers!  
USE TROUBLE-FREE  
**LITTLE GIANT**  
PUMPS  
for EVAPORATIVE COOLERS

**LITTLE GIANT PUMPS**  
are hermetically  
sealed in oil!

Heavy duty motor  
operates in oil, needs  
no lubrication. Motor  
windings cannot become  
wet even when  
submerged. Strong and  
permanent, small and  
compact. Neat in  
appearance. Made of  
highest grade die-cast  
aluminum case with  
baked-on plastic  
coating.

Available  
in 3 sizes

Can be furnished  
with threaded front

for REFRIGERATION and  
AIR CONDITIONING

Little Giant Condensate Pumps solve the problem of  
condensation in mechanical refrigeration and  
air-conditioning units.

Ready to install. Coated  
throughout to prevent  
corrosion. Positive  
displacement switch;  
completely automatic.  
Quiet in operation.

Write Today for  
Catalogue Sheet,  
Specifications & Prices

Available  
in 2 sizes

**LITTLE GIANT VAPORIZER CO., INC.**  
5101 Classen Blvd., Oklahoma City, Okla.

### Registers and Diffusers

REGISTERS, return air faces, perimeter and baseboard diffusers are illustrated and briefly described in catalog 54 (12 pages) — A & A Register Co., 8327 Clinton Rd., Cleveland 9. Listed are sizes, prices and types of finishes used.

### Air Conditioning News

INFORMATION on sales contest, tips on merchandising and news about trends in the air conditioning industry are brought to dealers every month in the publication, *Inside Carrier* — Carrier Corp., 308 S. Geddes St., Syracuse 1. A typical issue is Volume Five, No. 8, which discusses budget payments, tieing in promotion plans with such national publicity programs as National Home Week and working with home builders to develop a market for residential air conditioning equipment.

### Gas Burning Equipment

CATALOG No. 55 (32 pages) covers bench furnaces, portable heaters, automatic hand burners, valves, torches, mixers and blowers — Johnson Gas Appliance Co., 520 E Ave., N.W., Cedar Rapids, Ia. The catalog is illustrated throughout with photographs of equipment and diagrams of various applications.

### Folders and Brakes

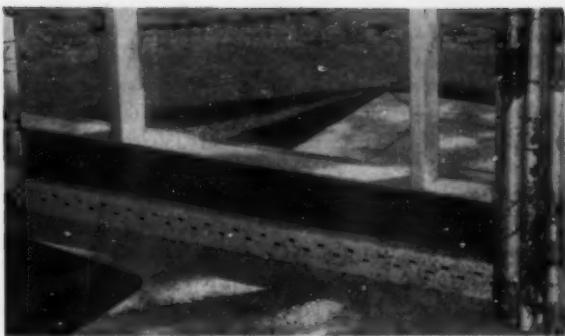
BULLETIN 74-B (12 pages) presents information on an air actuated adjustable bar folder — Niagara Machine & Tool Works, 683 Northland Ave., Buffalo 11. Data is also given on the company's hand and foot operated folders and brakes. Operating data and specification tables are accompanied by illustrations of the machines, as well as examples of sheet metal work produced.

### Insulating Materials

SELLING INFORMATION, selling aids and suggested resale prices are contained in an eight page catalog designed for the use of wholesalers of insulating materials for heating, air conditioning and ventilating applications — Grant Wilson, Inc., 141 W. Jackson Blvd., Chicago 4. The booklet describes what the product looks like and explains where it should be used. Also included are specifications and information on "how to buy."

### News for Heating Dealers

THE HOUSE ORGAN, *Republic Electric Sparks*, regularly presents information on interesting installations of heating and air conditioning equipment, discusses merchandising techniques and publishes news about employee activities — Republic Electric Co., Davenport, Iowa. A recent issue features an article on the company's mobile display unit, which carries demon-



## PATCO AIR BASEBOARD MORE THAN SATISFIES...

### *the contractor*



"I'm installing Patco Air Baseboard," says Dan Doskow, third generation heating contractor, "because it's much easier and faster to install. I can do more jobs with Patco and my customers like it better, too."

Charles S. Apgar says, "Patco caused me to start in the warm air heating field. The decision was made easy when I found I did not have to invest in expensive metal working equipment and I could readily adapt my men to this simple installation."

### *the jobber*

Bethlehem, Pa., plumbing and heating jobber Carl M. Adams says, "Experience shows that Patco has proven itself a superior product. It has many advantages of design, humidification, air filtration and air circulation. Disadvantages of conventional warm air systems are eliminated. We expect to double our volume during the next year with Patco systems."



### *the builder*

Carl Metz, builder of fine homes, says: "I put Patco Air Baseboard in my developments because it's the perfect diffuser for warm and cool air and is economical to install. It has many other features which help sell my homes — pleasing appearance, no drafts, noiseless operation and it eliminates smudges and streaks on walls."

### *the home owner*

From Richard L. Ferris, Maryland: "The inclusion of your heating system in our new home has proven to be a most satisfying step. This type is outstanding in that it takes up little room, blends well with the room setting and provides an even, well-distributed heat throughout."

From Anne Eckert: "Being sixty-eight years of age, I appreciate the nice warm air that uniformly blankets the floor and eliminates drafts. The baseboard is very attractive and is no bother to clean, as it does not streak or produce dust."

*You'll be more than satisfied, too. Get details today.*



PATCO  
MFG. CO.

AIR-BASEBOARD

THE WALL RADIATES HEAT

1950 PATENT PENDING

231 N. 3rd St.

Philadelphia 6, Pa.

## Top Quality NATIONAL LOCK Hardware makes a good product better

Ask About It For Use On  
air conditioning equipment . . .  
stokers . . . gas heating units . . .  
oil burners . . . humidifiers . . .  
space heating units



write for complete information

NATIONAL LOCK COMPANY  
ROCKFORD • ILLINOIS

strator models of heating and air conditioning equipment to dealers and their customers in various parts of the country.

### Air Conditioning Supplies

CATALOG covers air conditioning equipment, tools and supplies — Refrigeration and Air Conditioning Div., Chase Supply Co., 546 W. 119th St., Chicago. Included are complete specifications and engineering data. A separate price supplement accompanies the catalog.

### Cooling Towers

ILLUSTRATED CATALOG describes five models of "Flow-Cold" cooling towers — Acme Industries, Inc., Mechanic & Ganson Sts., Jackson, Mich. Features of the unit, including all-metal galvanized construction, are detailed and complete dimensions are given. A selection procedure is presented to aid in choosing models best suited for specific applications.

### Space Heaters

OIL OR GAS FIRED "Paraflame" warm air space heaters are illustrated and described in bulletin No. 552 (eight pages) — Dravo Corp., 411 Seventh Ave., Pittsburgh 19, Pa. Illustrative material includes photographs of typical applications, a keyed cutaway view

of the unit showing design and construction features and diagrams showing location of parts and giving dimensional information. The units are manufactured in two sizes — one with an output of 200,000 Btu per hr and another with a capacity of 250,000 Btu per hr.

### Industrial Ventilation

THE THIRD EDITION of the *Industrial Ventilation Manual* features the latest information on air cleaning devices, laboratory hoods and testing of discharge stacks (\$3.00) — Committee on Industrial Ventilation, P. O. Box 453, Lansing 2, Mich. The book is divided into 11 sections covering general principles of ventilation; dilution ventilation; comfort ventilation; hood design; specific operations; duct design; make-up and recirculated air; construction specifications; testing of ventilation systems; fans; and air cleaning devices.

### Compact Air Conditioning Units

AIR CONDITIONING units designed for small and average size homes are described in a four page, illustrated brochure — Sunwarm, Inc., P. O. Box 263, Kingsport, Tenn. The conditioner uses no water, eliminating the need for plumbing connections and cooling towers. Units are available in one-or two-zone models, the two-zone unit dividing the home into the "living zone" and "sleeping zone," and channeling the cooled air to the areas where it is most needed.

## Introducing the new A & A NO. P-54 BASEBOARD DIFFUSER

Here's a brand new register for perimeter baseboard heating installations.

- Adds beauty to every home
- Reduces installation time and labor
- Increases heating efficiency and comfort.

Packed in shipping cartons as follows:  
4 foot lengths—2 per carton  
2 foot lengths—4 per carton  
Made in standard finishes at standard list prices.



- Speeds-up installation time because all parts snap-on without screws or tools.
- Separate bottom section simplifies cutting out for stackhead.
- Dampers are made in two foot lengths and operate separately for closer control of air flow at register face.
- The P-54 is designed for both old and new installations and can be assembled before or after finish flooring and plastering.
- Connector strips permit diffusers of any length in multiples of two feet.

**THE A & A REGISTER COMPANY**  
8327 CLINTON RD. CLEVELAND 9, OHIO

## COST CUTTING IDEAS FROM LINCOLN

Fig. 1. Speeds Fabrication of utility cabinets from 2-S and 3-S aluminum to cut production costs.

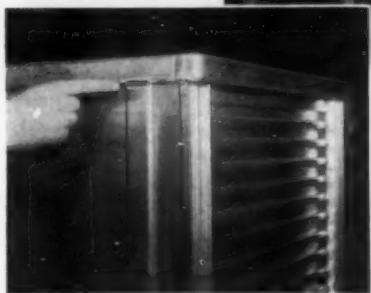
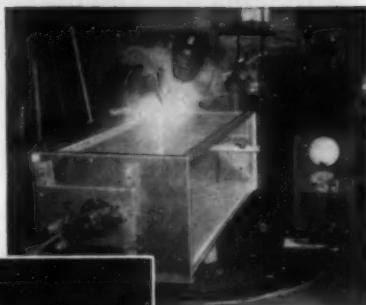


Fig. 2. Improves Quality by producing solid, smooth welds with minimum discoloration to parent metal. Photo shows bead as welded.

## LINCOLN INERTARC

...for high quality,  
low cost welding with inert gases

• Dual purpose welder

—Easily changed over from inert arc to conventional AC welding with coated electrodes. Changeover takes 2 minutes.

• Meets Requirements of F. C. C. for non-interference with radio and TV reception.

• Easy to Use. With INERTARC, the arc starts whenever the electrode comes within proper range of the work and the arc strike button is depressed.

• Speeds Operations.

Provides steady arc with maximum ease... maximum speed of welding without sacrifice of quality on aluminum, non-ferrous and on stainless steel fabrications when AC is specified.

• Safe for Operation. Open circuit voltage on the holder remains at zero until the "start" button is depressed. With INERTARC, there is no continuous high frequency or high voltage for arc starting or welding.

**GET FACTS.** Send for Bulletin. Complete description and specifications of Lincoln INERTARC are in Bulletin 1329. Available by writing on your letterhead to:

**THE LINCOLN ELECTRIC COMPANY**  
Dept. 3905 • CLEVELAND 17, OHIO

The World's Largest Manufacturer of Arc Welding Equipment

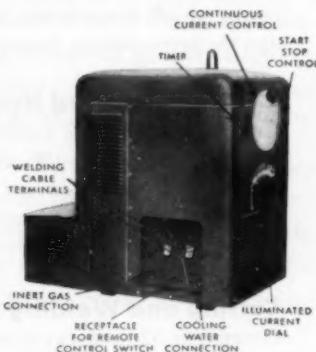


Fig. 3. Simple to install. Connections for welding cable terminals, cooling water and inert gases are housed in recess at side of machine. Illuminated current dial indicates when welder is turned on.



## Clima-Twins

by PEERLESS



If your business blows "hot" and "cold" like the weather, then put your sales on a high-volume basis the year 'round with the CLIMA-TWINS. Any season is the season for these twin units—one for summer cooling and dehumidification... the other for winter heating. The CLIMA-TWINS are the answer to modern living. Sell "up" from a furnace to the CLIMA-TWINS.

Peerless Furnace and Foundry, Inc.  
1853 Ludlow Avenue, Indianapolis, Indiana

Please rush me descriptive material on your new CLIMA-TWINS.

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

**HEAT-RESISTING STEELS  
SHEARED  
TO SIZE FOR YOUR**

# Combustion Chambers

**Exceptional Forming Qualities**

Ingersoll specializes in producing heat-resisting stainless steels—of exceptional forming qualities—specifically for oil burner combustion chambers.

Whether you use these steels in large or small quantities, Ingersoll facilities offer exceptional service by custom shearing to your own specified combustion chamber blanks, or multiples thereof.

**Advantages  
OF HEAT-RESISTING STEEL CHAMBERS**

- No breakage in shipment or handling
- Lighter weight lowers freight costs
- Quicker heating—greater efficiency

Write, wire or phone for details

**Ingersoll** STEEL DIVISION

Borg-Warner Corporation  
310 S. Michigan Ave., Chicago 4, Illinois  
Plant: New Castle, Indiana



**new literature**

(Continued)

**Heating and Cooling Equipment**

CATALOG describes gas, oil and coal fired furnaces; gas and oil conversion burners; and 2 and 3 hp "Marvellaire" residential cooling units — The Meyer Furnace Co., 1300 S. Washington St., Peoria 1, Ill. The catalog is divided into three sections, according to type of fuel used, to facilitate reference.

**Tips on Selling**

FOUR PAGE CIRCULAR lists 25 "ideas to help make more sales" — Kelly-Read and Co., Inc., 508 St. Paul St., Rochester 5, N. Y. Points covered include planning your working time; the importance of the first minute with the customer; making yourself understood; asking for the order; keeping promises; and the need to believe in what you're selling. Copies are available if requested on company stationery.

**Electronic Controls**

ELECTRONIC TEMPERATURE CONTROLS for heating, ventilating and air conditioning applications are discussed in a 24 page booklet entitled *The Electronic Control Story* — Barber-Colman Co., 1101 Rock St., Rockford, Ill. Dealing with the basic elements of electronic control, the booklet explains the following points: the bridge circuit, sensing elements, type of control, and control applications. The booklet discusses on-off temperature control, humidity control and the proportioning temperature control.

**Gas and Oil Fired Heating Units**

CATALOG No. 854 (12 pages) covers oil and gas fired heating equipment — Thermo-Products, Inc., North Judson, Ind. Described are winter air conditioners, suspended downflow furnaces, floor furnaces, conversion burners and water heaters.

**Cutting and Welding Products**

CONDENSED 52-PAGE CATALOG (ADC 662B) describes and illustrates "Airco" light welding and cutting equipment — Air Reduction Sales Co., 60 E. 42nd St., New York 17. Equipment covered includes torches, tips, regulators, electrodes, etc. The text explains how each item operates and specifies the jobs for which it is best suited.

**Air Conditioning Units**

AIR CONDITIONING literature featuring a standard design of "white clouds against the sky background" includes an accordion type envelope stuffer and two six-page circulars, one designed for the consumer and the other for the dealer — Airtemp Div., Chrysler Corp., 1600 Webster St., Dayton 1. Air cooled units in 2, 3 and 5 hp sizes are described for adaption to new and existing air distribution systems.

Both you and your customers profit when you install the

## REX AIR-PAK BLOWER-FILTER



**R**ight around the corner from your shop there's a big profitable market waiting for you! One out of every five of the heating systems in your area is a gravity furnace that needs modernizing—needs an efficient and economical REX AIR-PAK BLOWER-FILTER.

The REX AIR-PAK BLOWER-FILTER—by forcing clean, filtered air into hard-to-heat rooms in winter and providing cooling ventilation in summer—steps up comfort, saves fuel and money for your customers, makes sales and profits for you.

Packaged for easy installation—powered by the sturdy, trouble-free Rex blower—cushioned on resilient rubber for quiet operation—the REX AIR-PAK is designed for many years of satisfactory service. A full range of sizes makes it simple for you to modernize any warm-air gravity heating job.

For complete details—write today to

### AIR CONTROLS, INC.

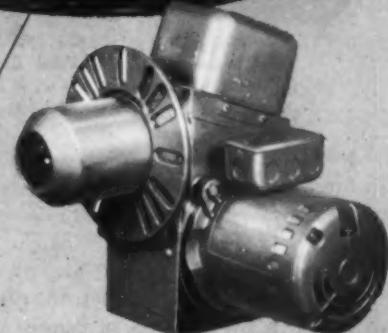
Division of the Cleveland Heater Co.

2310 SUPERIOR AVENUE • CLEVELAND, OHIO

for the **SMALLEST JACKET  
EXTENSION**

for the **MOST LIMITED  
CLEARANCES**

use the  
NEW



## SUN-RAY BANTAM

Now you can have a burner compact enough to fit the smallest jacket extensions without sacrificing quality or efficiency. Fitting a minimum extension of only 8 $\frac{1}{2}$ " and measuring 15 $\frac{1}{2}$ " wide, the Sun-Ray Bantam makes possible important space savings in the design of boiler and furnace units with limited clearances.

Despite its truly small dimensions the Bantam has the same high quality construction and efficiency as all Sun-Ray burners.

### FEATURES

Exclusive *Perimi-T-Aire Metering*\* for uniform, unimpeded air intake—eliminates all dead spots. Finger-tip dial facilitates precise adjustment of air volume.

*One Piece Precision Machined Casting* with housing scroll designed for smooth, efficient air delivery.

*Pressure Seal Design* assures efficient, quiet, uniform air delivery. Unique bulkhead seals low pressure from high pressure air, eliminates pulsation.

*Plus:* The use of highest quality standard parts throughout; easy servicing, with swing-away transformer exposing all vital parts. All models are approved by Underwriters' Laboratories, Inc., C.S.A. and all other leading authorities. Capacity is 0.5-2.00 g.p.h. Available flanged or base mounted.

\*Patent pending

ATTENTION BOILER AND FURNACE MANUFACTURERS—Sun-Ray's engineers will cooperate in adapting the Bantam to your particular requirements. Write for details.



Sun-Ray Models from 0.5 to 22 g.p.h.



SUN-RAY BURNER MFG. CORP.  
139-34 QUEENS BLVD. • JAMAICA 35, N.Y.

*we hear that . . .*



THIS 1921 MODEL-T Ford fire engine, re-furbished by Rheem Mfg. Co., is being used by the company to advertise "Fire-Tested" furnaces

- RHEEM MFG. CO. has reconditioned a 1921 Ford fire engine and is using it to advertise heating equipment throughout the midwest sales area.
- The Duro-Dyne Corp. has purchased from the Parker Kalon Div., General American Transportation Corp., its complete line of damper quadrants, regulator accessories, metal punches and file and solder iron handles. All machinery and tooling formerly employed by the Parker Kalon Div. to manufacture these prod-

ucts have been moved to the Duro-Dyne plant and production is now under way. This newly acquired line will be manufactured in addition to the four other products now made by the Duro-Dyne company.

► THE SAN FRANCISCO BRANCH of the Coleman Co., Inc., has moved from 195 Rhode Island St. to a new industrial building at 250 Sylvester St., South San Francisco.

► DELAVAN MFG. CO. has started construction of a building annex which will provide an additional 6000 sq ft of production space. This is the fifth building expansion program for the firm since it was founded in 1937.

► ELGEN MFG. CORP. has been licensed by Minneapolis-Honeywell Regulator Co. to manufacture and distribute "Damperset" damper hardware, designed for multi-blade dampers.

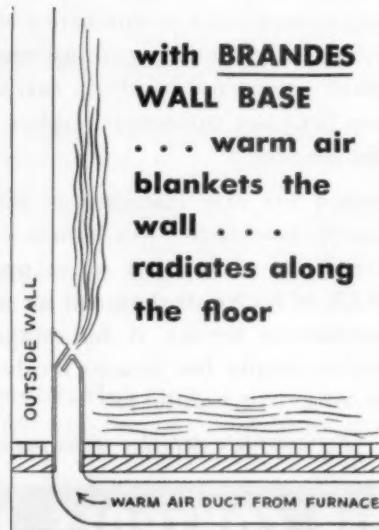
► DUNCAN CAMERON MENZIES has been elected president, general manager and a director of Servel, Inc., succeeding W. Paul Jones who becomes vice chairman of the board.

James F. Donnelly, vice president in charge of sales for the company, has been named to serve on two committees of the American Gas Association. He was

## GAIN FLOOR SPACE FOR FREE!

Your customers will go for Brandes Wall Base Heating when you explain to them its many advantages . . . more freedom in furniture placement, low installation cost, more uniform heat circulation, neat appearance. Write The Brandes Co., 2046 Winnebago Street, Madison 4, Wis.

**BRANDES**  
PATENTED  
**WALL BASE HEATING**



# Gas Burners for Every Conversion Job!

45,000 TO 2,000,000 BTU

## BARBER INSHOT VENTURI

Lowest initial cost; simple orifice change adapts to all gases; lightweight, and easy to install. Up to 250,000 BTU.

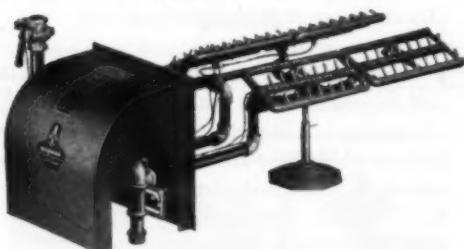


## BARBER UPSHOT

Easy to install burner for any type boiler, or furnace unit. Efficient, economical. Available to 400,000 BTU input.

## BARBER MULTIPLE JET

Finest burners made. Available round or square to fit any boiler or furnace. Available to over 2,000,000 BTU.



For prices and specifications on Barber Burners write to the Barber Gas Burner Co., 3704 Superior Avenue, Cleveland 14, Ohio.

THE *Barber* GAS BURNER CO.

SAVE TIME  
SAVE SPACE  
SAVE WASTE

with **DUC-PAC**

New . . . . Revolutionary  
Snap-Together Fittings



They snap together in a matter of seconds.



Here at last is a line of knocked-down duct fittings designed specifically to fill YOUR needs. DUC-PAC'S exclusive internal snap lock eliminates any "folding over" operation . . . improves appearance of finished job.

### THEY SAVE YOU TIME

You can assemble DUC-PAC galvanized fittings in seconds. Simplified system saves time in laying out a job. Practical design of fitting saves time in installing. They just *snap* together . . . no hammer necessary.

### THEY SAVE YOU SPACE

DUC-PAC galvanized fittings are shipped knocked-down, packaged 12 to a carton, require only about 10% of space needed to store old-style fittings. They save space in your truck, too.

### THEY SAVE YOU WASTE

Because they're knocked-down and packed in cartons, DUC-PAC galvanized fittings don't become dented or battered in storage or in the truck. Eliminating waste keeps your costs down.

Request free descriptive bulletin showing complete line.

**DUC-PAC**

DIVISION of SWETT BROS.

78 ISLAND POND RD., SPRINGFIELD • MASS.



# Guarantee

## Carefree Fuel Supply in Oil Burner Sales

with combination

### VENTALARM® GAUGE

Underwriters' Approved



The famous whistling tank fill signal and easy reading gauge in one money-saving unit. Goes on tank as integral part of vent pipe. Signal case takes the place and saves cost of reducer bushing. One less tank opening needed. One item to install instead of three.

Specify tank depth and opening when ordering.

"BUTTON-LIFT" INSTALLATION

Lifting the button indicator draws cork arm up close to main shaft for easy installation even in partly filled tanks.



or the

### SCULLY® GAUGE

Underwriters' Approved



A modern convenience in every way. Big figures, adjustable face, jam-proof lever arm, cork float. Accurate service-free operation.

Specify tank depth when ordering.

and the famous

### VENTALARM

U. S. PAT. OFF.

#### WHISTLING TANK FILL SIGNAL

Accurate fuel oil delivery without home entry. Truly automatic fills for the householder. Makes oil supply as clean and convenient as any other fuel.

A variety of models for new and old tanks.

Scully Products are manufactured under U.S. and foreign patents or patents pending.

See your regular Supply House.

### SCULLY SIGNAL COMPANY

174 Green St., Melrose 76, Mass.



we hear that

(Continued)

appointed a member of next year's gas refrigeration committee and will also serve on the 1955 managing committee of the residential gas section of AGA.



OFFICIALS of the Hart & Cooley Mfg. Co. met recently with sales representatives to discuss all phases of the company's operation

► THE HART & COOLEY MFG. CO. recently held its 17th annual sales conference at the home office and factory in Holland, Mich. The two day conference was highlighted by the annual golf tournament, in which all members of the sales force and office personnel participated.

► ARMCO STEEL CORP.'s \$10 million expansion program at its Ashland, Ky., works is rapidly nearing completion. New facilities at the plant include a cold reversing mill, a continuous strip pickler and two "Zincgrip" lines.

► MARSHALL G. MUNCE, vice president of the York Corp., has been elected to fill the unexpired three-year term of J. R. Hertzler on the board of directors of the Air-Conditioning and Refrigeration Institute. Mr. Munce will represent the year 'round residential air conditioning section of ARI on the board, and is also chairman of the bylaws committee.

► THE HEATING CONTROLS DIV., Minneapolis-Honeywell Regulator Co., is setting up a nationwide network of training aid libraries as part of a program to help dealers, wholesalers and builders better understand the operation of automatic temperature regulating devices. K. L. Wilson, division head, said 24 U. S. and two Canadian training aid centers would provide company sales engineers with visual aid materials which could be used in meetings with customers for the discussion of new products and of installation, service and sales problems. The libraries will be in Cleveland, Cincinnati, Detroit, Pittsburgh, New York, Union (N. J.), Boston, Syracuse, Hartford, Philadelphia, Baltimore, Washington, Chicago, Indianapolis, Milwaukee, St. Louis, Denver, Portland (Ore.), Minneapolis, Los Angeles, San Francisco, Atlanta, Dallas, Kansas City, Toronto and Calgary.

Recently graduated from an advanced service and



## Lo-BLAST ECONOMITE

...proves amazingly successful in cutting heating costs and improving comfort

A heating engineer writes:

"We got the gas bill and could hardly believe what we saw. Where we used to pay between \$30 and \$40 per month for oil and another \$7 to \$10 for bottled gas, our total for last December came to \$16.17 (compared to over \$40 for December, 1949).

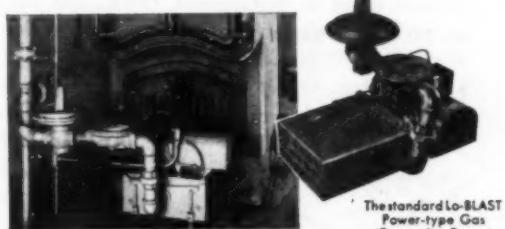
"Our electric bill was also smaller and to top it off, our house was more comfortable, even though December, 1950 was a colder month than December, 1949. The pilot flame of the gas burner seems to supply just the right amount of heat to the furnace walls to maintain a temperature just below the cut-in point of the fan control. A few seconds after the burner starts, the blower starts and thereby stratification is practically eliminated.

"In my 20 years' experience as heating engineer, I have never been more pleased with the performance of any apparatus than the Economite." (Name and address on request)

### Dealers!

The above letter shows why Lo-BLAST Power Gas Conversion Burners sell! For over 19 years Lo-BLAST Burners have cut heating costs in buildings of every size and character. Write—today—for full information.

Lo-BLAST Burners are available in capacities from 70,000 to 20,000,000 BTU input.



The standard Lo-BLAST Power-type Gas Conversion Burner

MID-CONTINENT  
METAL PRODUCTS CO.  
1960 N. Clybourn Ave., Chicago 14, Ill.

# Extra \$ \$ Dollars for every installation



## Add GLYCOLATOR\* Air Sanitation

to new and existing heating  
and air conditioning installations.

Every installation of this fast selling, low-cost Furnace Model GLYCOLATOR will add more dollars to your total sales along with desirable PLUS dollars of extra profit for your business operation.

The Furnace Model GLYCOLATOR was designed specifically for installation with existing or new warm air heating and air conditioning systems. The compact (10" high) Furnace Model is an electrically operated unit, easily attached to the side of the furnace or air conditioning unit and automatically vaporizes Glycosol. Thermostatically controlled — it protects every room evenly, efficiently and inexpensively — treats homes with furnaces of up to 120,000 B.T.U.

According to hospital tests, Glycosol vapors reduce airborne bacteria and viruses from 80% to 100%. Laboratory experiments have proven conclusively that it is odorless, harmless and absolutely non-toxic.

There is a complete line of heating, air conditioning and portable model GLYCOLATORS available for every application.

DESIRABLE FRANCHISE AREAS AVAILABLE — WRITE TODAY FOR PARTICULARS.

\*Registered

Please send me full information on the profitable Glycolator sales plan.

NAME \_\_\_\_\_

COMPANY \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_

Glycolator  
DIVISION

IRON CITY CHEMICAL  
COMPANY

Valencia, Pa.

USE

# Malco PRODUCTS

## For SPEED AND EFFICIENCY

Thousands of heating men and men working with downspouting use Malco Crimpers every day.

18 to 30 gauge capacity.

GUARANTEED  
to satisfy

★ ★

## SCRATCH AWLS

GUARANTEED TO PLEASE, Awls have tough "Tenite-2" plastic handles. Blades will pound through several thicknesses of 24 gauge Steel. Awl is 5 1/4" long.



PRICE \$3.60 DOZ.

# Malco

## COMPLETE DAMPER

for the price of a quadrant



DAMPERS for  
5", 4 1/2" & 4"  
Round Pipe

Price per Gross      \$21.60  
Price per Dozen      1.90

MAKE EVERY JOB  
A BALANCED JOB  
at very little  
extra cost

## HEAVY DUTY SAWGUN BLADES

### All Blades Guaranteed

All "HD" Blades are thicker than standard, have hardened teeth and flexible back. They will cut through all wood, plaster and imbedded nails faster and with less bending and breaking than any other blade. They properly fit the major group of good saws now used for roughing in work.

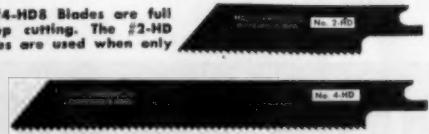
No's 2-3 & 4 Heavy Duty Blades are available in both 10 & 8 teeth per inch.

NEW size No. 3-HD is 4 1/4" long, cuts through 4" board and will do about 90%, of all roughing in work. You'll like it better and save money using it.

No. 3-HD priced each in lots of 10—29c, 50—27c, →  
100—25c & 250—23 1/2c.



The #4-HD and #4-HD8 Blades are full 6" long for deep cutting. The #2-HD and #2-HD8 Blades are used when only shallow sawing is required.



See Your Jobber  
or Write Today To →

# Malco

## PRODUCTS

4224-26th Avenue So.  
MINNEAPOLIS 6, MINNESOTA

## we hear that

(Continued)

installation school on automatic controls held at the company's home office were 27 engineers from 20 branch offices and factories. The course covered instruction in the principles, design, installation and maintenance of automatic temperature regulating devices for heating, ventilating and air conditioning in various types of buildings.

Two new post-graduate fellowships for engineering and physics students have been set up by the company with Purdue University and Tau Beta Pi, honorary engineering society, which were effective with the start of the school term this fall.

► THE EXPANSION PROGRAM of the Peck, Stow & Wilcox Co.'s Machine Tool Div. calls for the developing of machine tools not previously made, which will be added to the line of sheet metal working tools now being produced.

► THE NEW ORLEANS sales branch of Minneapolis-Honeywell Regulator Co. has moved into its new offices at Prentiss and St. Roch Sts.

► A-P CONTROLS CORP. has prepared an eight page booklet portraying in cartoon form some of the many services performed by the wholesaler and depicting some of the numerous problems he is called upon to solve daily. Designed as an enveloped stuffer, the booklet measures 4 x 6 1/2 in.

► PERFECTION STOVE Co. has opened a new southeastern regional sales office at 328 Marietta St., N. W., Atlanta, which will merchandise central heating and combination central air conditioning equipment. Leslie Bushfield has been named southeastern regional manager.

► THE TRANE CO. has moved its Greenville, S. C., sales office to the Shives Bldg., 644 E. Stone Ave.

► FOLLANSBEE METALS, Div. of Follansbee Steel Corp., is now serving its New England customers from its new depot in Wallingford, Conn., and has closed its previous regional headquarters at Fairfield, Conn.

► THE HEIL CO. is offering its dealers a literature display rack which may be set on the floor or counter or hung on the wall. Twelve compartments hold heating and air conditioning literature and specification sheets.

► A DAYTON, OHIO, building contractor has found air washing the attic of a home to be an effective means of reducing the initial and operating costs of the air conditioning system. Dan Taubman, Daniel's Heating and Air Conditioning Co., suggested that an



**No zinc flakes to clog machines when we use  
TI-CO<sup>®</sup>  
GALVANIZED SHEETS**



—says Gene Russel,  
shop foreman of  
Industrial Sheet Metal  
Works, Chicago

"Machine down-time can give your shop profits a beating. In working ordinary hot-dip galvanize, machines jam from bits of zinc coating that flake off. On big jobs we've often lost up to 3 hours machine time cleaning out caked-up zinc particles from locking, cleating and edging machines.

"The coating on Inland Ti-Co galvanized sheets doesn't flake off, even under tough forming. And it doesn't crack along lock seams the way ordinary hot-dip galvanize does. This means we don't waste machine time, don't have to do jobs over, and turn out better galvanized work."

**NEW INLAND TI-CO GALVANIZED SHEETS . . .**

- **non-flaking.** Galvanized by a patented, continuous process, eliminating brittle iron-zinc layer that causes ordinary "hot-dipped" galvanized coating to flake.
- **always uniform.**
- **cost no more!**

Ask your dealer for Inland Ti-Co.  
Look for this stencil on all your galvanized sheets.

Write Dept. A4  
for free descriptive  
booklet.



**INLAND STEEL COMPANY**

38 South Dearborn Street • Chicago 3, Illinois

Sales Offices: Chicago • Milwaukee • St. Paul • Davenport  
St. Louis • Kansas City • Indianapolis • Detroit • New York



**SELL FAN-AIR DIFFUSERS**

*Send for Premier literature and sales helps*

*Get the facts about Premier FAN-AIR Diffusers: Practical, efficient, smartly styled, sensibly priced.*

*Read about Chief Warm-All-Over's "diffusers" — you will find it helpful in selling your customers.*

*Send the coupon below without obligation.*

**I'm interested . . .**

**Please send:**

- Chief Warm-All-Over's Story**
- Facts on FAN-AIR Diffusers**
- Folder on Oil & Gas Furnaces**
- Complete PREMIER Catalog**

Name . . . . .

Firm . . . . .

Street . . . . .

City . . . . . Zone . . . . . State . . . . .

**PREMIER FURNACE COMPANY**

*Manufacturers of Warm Air Heating and Air Conditioning Equipment*

**Dowagiac, Michigan**

exhaust fan be placed in the gable end of the attached garage of the homes to be air conditioned, estimating that the reduction in heat gain would permit installation of a three ton unit instead of the five ton size originally specified. He pointed out that the Lau Blower Co. had, by installing a 30 in. fan in its 150 ft long laboratory attic and running it for two hours, succeeded in lowering the temperature by 24 F.



FROM THE NEW administration building of the Scully Signal Co., Frank P. Scully, president, will direct manufacturing, promotion and research activities

## FLEXIFLO THE DIFFUSER WITH A BUILT-IN VOLUME CONTROL

FLEXIFLO adjustable air diffusers reduce installation costs by providing for rapid, easy adjustment of air volume and pattern after installation by simple knob adjustment.

Engineering is simplified since the FLEXIFLO's wide range of adjustability provides wide latitude in selecting the correct size diffuser.

FLEXIFLO diffusers assure uniform air distribution with built-in equalizing deflectors which are easily adjustable after installation. Rapid draftless mixture of supply and room air is assured.

**FLEXIFLO diffusers for every cooling, ventilating and heating need are made in 12 standard sizes, up to a capacity of 12,000 CFM.**

### FOR COOLING



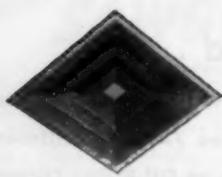
TYPE R—Air travels in a constant pattern parallel to the ceiling regardless of volume adjustment.

### FOR COOLING & HEATING

TYPE V—Air diffusion pattern and volume are fully adjustable, after installation.



### SQUARE



TYPE H—Fully adjustable square diffusers and fixed rectangular 2, 3, and 4 way diffusers.

### FOR SIDEWALL & CEILING

TYPE S—With Type R or V blades to supply desired air pattern for ceiling or wall installation.



Write for technical data catalog on Flexiflo line

**Universal Diffuser Corp.**

1350 Garrison Ave. • New York 59, N. Y.

► EXECUTIVE OFFICES and testing laboratories of Scully Signal Co. moved recently to a new headquarters building in Melrose, Mass., where its manufacturing facilities have been located since last December. This move completes the transfer of the company's facilities from the previous location in Cambridge.

► TYPHOON AIR CONDITIONING CO., INC., recently completed the move of its factory and general offices into its new building located at 505 Carroll St., Brooklyn. The new building provides more than double the amount of floor space for manufacturing facilities, will allow enough space for a 1000 ft assembly line.

► AT THE ANNUAL MEETING of the board of directors of the Webster Electric Co., the following officers were elected: S. A. Loeb, chairman, executive committee; Arthur C. Kleckner, chairman of the board; Preston G. Crewe, president and treasurer; and David J. Munroe, executive vice president.

► KAW ROOFING CO., Inc. and D-S Sheet Metal Works, Inc., Kansas City, Kans., have merged and are now Kaw Roofing and Sheet Metal, Inc.

► EDDY STOKER CORP. has purchased a four-acre tract of land in Wheeling, Ill., and has begun construction of the first part of a 60,000 sq ft steel building. Operations at the new plant are expected to begin shortly.

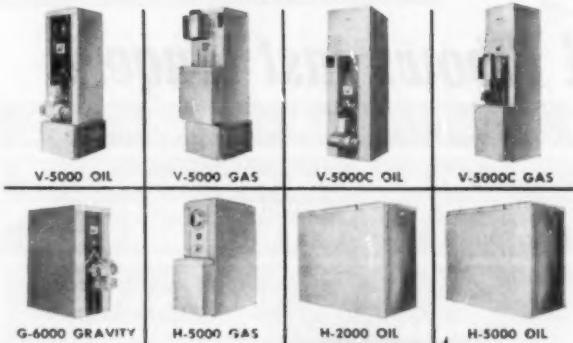
► THE CARBOLINE CO. (division of Mullins Non-Ferrous Castings Co.) has recently formed an adhesives division.

# LOSING too many bids?

Need a quality line of low-cost furnaces to compete for volume sales? Then you need SUN Fuel-Master furnaces . . . priced to sell against your toughest competition, yet in every respect equal in quality, dependability and workmanship to the finest furnaces on the market. *SUN furnaces carry a 20-year guarantee.*

There are 22 furnace sizes and models, oil and gas, plus companion cooling units for added sales. Price-wise, installation-wise, and profit-wise, you owe it to yourself to investigate the SUN line.

**SELL SUN FURNACES  
FOR GREATER PROFITS**



## GET THE FACTS

We'll be glad to send you complete literature, prices, and dealership information on SUN furnaces. Write TODAY!

**NOW**



*J.V. Patten Company*

SYCAMORE, ILLINOIS, U.S.A.

ESTAB. 1898 • INC. 1928

## How to Find and Keep New Business During Your "Slack Period"



There's no "slack period" in the furnace and boiler cleaning business. The cleaning business keeps your service crews busy all year, contacts and **KEEPS** new customers by firmly establishing you as an authority — the man to call for all other heating needs.

Join the many others who are building cleaning businesses this year with high quality Premier Furnace and Boiler Cleaners. Premier machines are the world's most widely used furnace cleaners!

- Separately ventilated motor — prevents burnouts on hot jobs.
- Extra large filter area — for continuous, on-the-job operation.
- Dual purpose — powerful vacuum unit PLUS portable hand blower.

Premier Furnace Cleaners, the oldest name in the furnace cleaning business, make cleaning jobs easy, keep the jobs profitable. Compact, easy to handle, a low cost Premier Cleaner allows one man to average four profitable jobs a day. And customers like the way Premier units handle messy work so thoroughly and quickly.



755 Woodlawn Avenue, St. Paul 1, Minnesota  
35 Gerrard St. West, Toronto 2, Canada

TAKE THE FIRST EASY STEP TO A NEW, MONEY-MAKING BUSINESS — WITH THIS COUPON.

PREMIER COMPANY, Dept. 406  
755 Woodlawn Ave., St. Paul 1, Minnesota

Without obligation, please send complete details on the Premier Furnace Cleaner.

NAME \_\_\_\_\_

FIRM \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ ZONE \_\_\_\_\_ STATE \_\_\_\_\_

## appointments . . .

► JOHN E. CRAIG as manager of the Packaged Refrigeration Sales Div., United States Air Conditioning Corp. Mr. Craig was formerly associated with Carrier Corp., doing special assignment work in the Chicago area, prior to which he served with the Airtemp Div., Chrysler Corp., as regional manager. The R. C. Black Co., 4330 Lake St., Rochester, has been named manufacturer's representative for the company, covering the western half of the state of New York.



Stuart A. Smith



John Holmgren



E. M. Delaney

► STUART A. SMITH as vice president and sales manager for the Waterman-Waterbury Co. John Holmgren has been named secretary-treasurer and E. M.

Delaney, sales promotion manager. David E. Sedgwick remains as president and Roy Lonson as vice president in charge of production.



Kendall H. Flint



C. L. Hewitt, Jr.



C. L. Tracey

► KENDALL H. FLINT as chief engineer in charge of heating for the Permaglas Div., A. O. Smith Corp. He will be in charge of the development and production of a new line of heating and air conditioning units. Before joining the division, Mr. Flint spent 19 years with the American Gas Association laboratories, where he served as chief engineer of testing and inspection. C. L. Hewitt, Jr., has been named manager of heating and air conditioning sales. Formerly he was with L. J. Mueller Furnace Co. as general sales manager, and for the past two years he has been active in heating distribution on the West Coast. C. L. Tracey has been appointed southeastern district man-

## Actual tests prove Cincinnati Elbows last longer!



All Cincinnati Elbows are covered with protective zinc because the elbow is hot-dipped *after* formation. Complete galvanizing insures a rust-proof longer life elbow with no trouble-causing leakage.

Cincinnati Elbows, precision made of uniform quality, are guaranteed to fit any size standard pipe. Available in any size, angle and metal, including galvanized steel, stainless steel, copper and aluminum.

Give your customers the best elbow available.

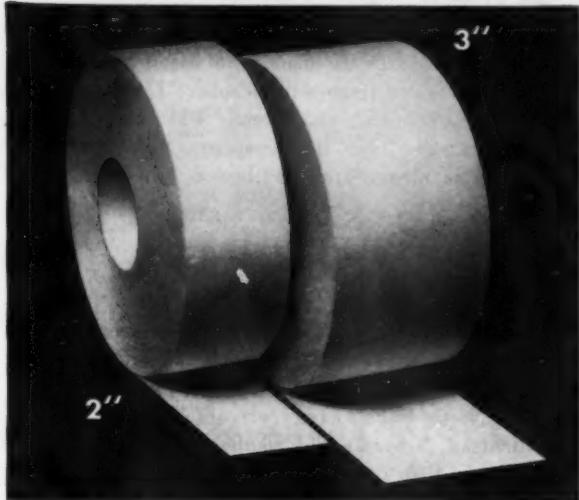
**ASK YOUR JOBBER.**

*Cincinnati Elbows fit better  
because they're made better!*

**CINCINNATI ELBOW CO.**  
4730 MADISON ROAD, CINCINNATI 27, OHIO

## Don't just say "ASBESTOS" ... say "SAL-MO"

With the most modern equipment and advanced production techniques, Sal-Mo Asbestos products are stronger, whiter, smoother than ever before.



### Sal-Mo ASBESTOS PIPE JOINT TAPE

12 rolls of 3" tape or 18 rolls of 2" tape are packed in an attractive carton.

#### Sal-Mo ASBESTOS PAPER

#### Sal-Mo ASBESTOS MILLBOARD

#### Sal-Mo ASBESTOS FURNACE CEMENT

#### Sal-Mo ASBESTOS CORRUGATED AIRCELL PAPER

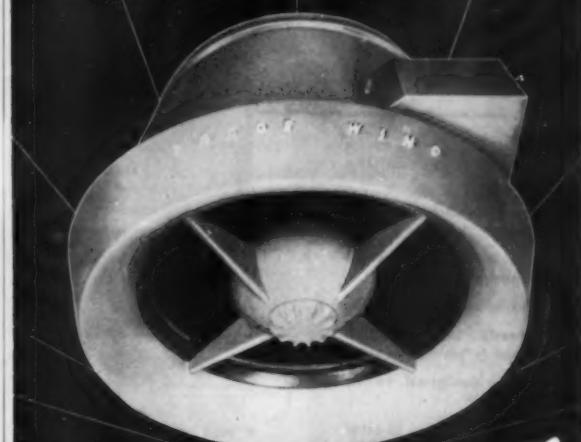
#### Sal-Mo ASBESTOS AIRCELL SHEETS & BLOCKS

#### Sal-Mo ASBESTOS INSULATING CEMENT

**SALL MOUNTAIN COMPANY  
HAMILTON, OHIO**



## Trade-Wind



### AXIAL FLOW

### VENTILATOR



#### FOR CEILING OR WALL INSTALLATION

Low Price

Outstanding New Styling

Surprising New Quietness

Easiest Installation In  
Old Or New Construction

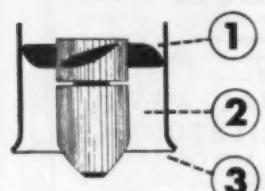
Performance Beats  
Expensive Units

1  
2  
3  
4  
5

The new low-cost Trade-Wind Axial Flow Ventilator now makes it possible to use either wall or ceiling installation with the same unit. The ventilator can be installed between joists in the ceiling or between studs in the side wall. Note that no elbows are required for vertical discharge.

The Trade-Wind gives you straight-through axial flow plus super-powered suction. And it sells at a low price which makes kitchen ventilation a must even in the most economically designed house. And it's so good looking! Styled by a top industrial designer, the Axial Flow adds a new distinctiveness to every kitchen.

#### WHAT IS AXIAL FLOW?



Aerodynamic impellers, shaped like airplane wings, give smooth powerful push to air, almost without noise.

Limited space between hub and tube concentrates straight through pressure drive.

Venturi-shaped tube, "hurries" the air flow by increasing the velocity.

*Trade-Wind Motorfans, Inc.*

7755 Paramount Blvd., Dept. AA, Rivera, Calif.

# MIPATAN

## Pittsburghlock ELECTRIC HAMMER

- Goes with you on the job
- Turns the flange on a Pittsburghlock
- Turns 3C Gauge through 24 gauge
- 2500 blows per minute
- Perfectly balanced — weight is on the work
- Handle designed to fit hand
- No springs — special patented air shock in shuttle
- Plugs into any 110 volt AC DC current outlet
- Cam Driven



- Not eccentric
- Smooth — finished work looks rolled
- Fast — pays for itself in a short time

## GIBSON

965 W. Western Ave.

## INDUSTRIES

Muskegon, Michigan

### WE ROLL RINGS

Expertly Rolled to your specific requirements,—also Channels, Tees, Flats, Rounds, Pipe and Tube—correctly rolled to a true circle. Used in joining pipe or smoke stacks sections; reinforcing tanks, vats, drums, guards etc.; bases for fans and hundreds of other installations.

Write for our list of stock sizes and discounts. Our circular, describing our angle rings and fabricating services is yours for the asking.

Phone Bishop 7-4255

**NATIONAL METAL  
FABRICATORS**  
2140 SO. SAWYER AVE.,  
CHICAGO 23, ILL.

## appointments

(Continued)

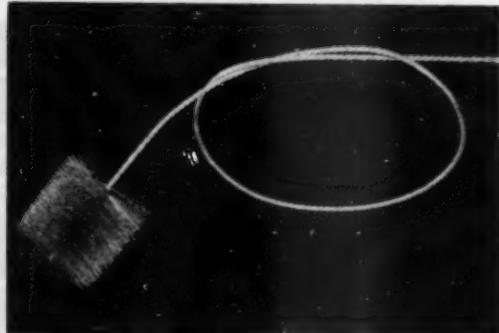
ager with headquarters at Atlanta, Ga. His territory covers the Carolinas, Georgia, Florida, Alabama and eastern Tennessee. George Crandall has been appointed sales representative in western Michigan and South Bend, Ind., Ernest C. Michaud will handle the St. Louis territory and James V. Pepin will cover Springfield, Mass. Auer Steel & Furnace Supply Co., Milwaukee, has been assigned a distributorship handling all products in part of the eastern Wisconsin area.

► GEORGE MAVES as manager of the Pacific region for Minneapolis-Honeywell Regulator Co., succeeding Gavin S. Younkin, who recently was named general sales manager for the company. Succeeding Mr. Maves as manager of the Boston office is R. W. Forster.

► WILLIAM A. MULCOCK as a regional manager for the Air Conditioning Div., General Electric Co., with headquarters in Chicago. He will be responsible for the division's sales in Region III, comprising the states of Wisconsin, Minnesota, Missouri, Iowa, Kansas and North Dakota and parts of Illinois, Indiana, Michigan, Nebraska and South Dakota. Mr. Mulcock has been with the company since 1933 and with the

## SCHAEEFER ROUND FURNACE BRUSHES

serve longer under hard use



Made of special Silver Bright Rustproof Wire, these Round Furnace Brushes do a faster, more thorough cleaning job, and offer a longer lifetime of service. Available in eight sizes, from 3" to 5" diameters, with 4 or 5 foot wire handles. Also supplied with Black oil tempered wire. Write for catalog and prices.

LOOK for the trademark **SCHAEEFER BRUSHES**  
—MILWAUKEE—  
**SCHAEEFER BRUSH MFG. CO.**  
117 W. WALKER STREET • MILWAUKEE 4, WIS.  
**BUY SCHAEEFER  
... IT'S SAFER**

Cut ANY Shape in Metal...

with a BEVERLY THROATLESS SHEAR!

- Capacities to 3/16" in mild steel
- Make clean, knurl-free cuts in any metal to capacity
- High Carbon High-Chrome Blades
- Built to last a lifetime



Here's What a Beverly Can Do!  
Cuts made in 18 ga. metal with Model B-1  
Beverly Shears are the most versatile metal shearing tools you can use. Unique shoulder design permits any cut... rack and pinion gives great power with little effort. Alloy steel body for maximum rigidity and strength. Made in 4 models.

Write for illustrated circular—or see your Beverly Distributor.

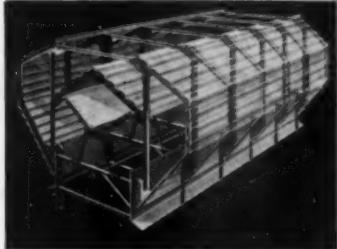
**Beverly SHEAR MFG. CO.**

3020 W. 111th Street

Chicago 43, Ill.



Model B-3  
with Ball  
Bearing  
Hold Down



FOR ECONOMICAL  
BIG VOLUME VENTILATION



**BURT MONOVENT**

The Burt Monovent Continuous Ridge Ventilator is particularly efficient for heavy industry in steel mills, foundries, forge shops. Installed on any type of roof, it converts the entire roof line into a gigantic exhaust valve that rapidly removes high heat or fumes from the entire structure. Center hinged type dampers — controlled from floor level — easily adjust the unit.

The Monovent's simple, heavy construction assures long, trouble-free life with minimum maintenance. Standard sizes from 4" to 96" widths handle almost any application. See Sweet's for complete data or write for Bulletin SPV-6.

FAN & GRAVITY VENTILATORS - LOUVERS - SHEET METAL SPECIALTIES

**The Burt Manufacturing Company**

38 E. SOUTH ST., AKRON 11, OHIO

## WHITNEY LEVER PUNCHES

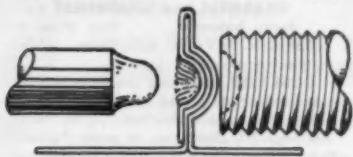
No. 6 Punch



This Tool is especially adapted for Button Punching or for Templet work. Punch will strip where handle cannot be opened to 90 degrees.

When used as a regular punch, the capacity is  $\frac{1}{8}$ " hole through 3/16" iron. Stock size  $\frac{1}{8}$ " to  $\frac{9}{32}$ ".

Punches to within  $\frac{1}{16}$ " of corner in angle iron.



This type of Button Punch work is easily and quickly done with the Whitney No. 6 Punch.

**W.A. WHITNEY MFG. CO.**  
636 RACE ST. ROCKFORD, ILL.

**DESIGNED AT YOUR REQUEST!**  
**BRAND-NEW DELTA FLOOR LEVEL FURNACE**

Installed and Serviced from INSIDE the house!

24 x 36 x 31" DEEP  
80,000 BTU/HR Completely  
wired and factory assembled

MASTER RELAY  
FLAME DETECTOR  
DELTA GUN-BURNER  
QUIET TWIN TURBINE FAN  
6" FLUE PIPE OUTLET AT EITHER SIDE  
8 FOUR-INCH AIR RETURN KNOCKOUTS  
HINGED INSULATED SERVICE DOOR

EASY TO INSTALL—takes 1 hour! EASY TO SERVICE—no need to crawl under the house! Write for details today.

**DELTA HEATING CORPORATION**  
1 COLE ST., TRENTON 8, N. J.

Make Stronger Fastenings  
this easy way



Hardened

## Masonry Nails

DRIVE EASILY into mortar, cinder blocks, and other soft masonry without pilot holes . . . into pre-drilled holes in harder materials. HARDNESS and TOUGHNESS perfectly balanced . . . they drive in straight to stay tight, even under shock or vibration.

COST YOU LESS and are much simpler to use than plugs, expansion bolts, other devices. Samples free . . . try them. Ask your P-K Distributor, or write: Parker-Kalon Division, General American Transportation Corporation, 200 Varick St., New York 14.

## PARKER-KALON® FASTENERS

SAFE,  
EFFICIENT  
INDUSTRIAL CLEANING  
COSTS LESS

WITH NEW BENNETT UNIVERSAL  
AIR-OPERATED CLEANER!

The Bennett cleaner is safe . . . because it is completely non-electrical. There is no danger of sparking, because there are no moving parts!

The Bennett cleaner saves time and money. It's light and highly portable. Cleans walls, shelves, beams, storage bins and other out-of-the-way surfaces with a minimum of labor!

Powerful suction developed by compressed air (approximately 90 lbs. pressure) is adequate for all industrial purposes. Highly efficient WET or DRY pick-up.

Adjustable to any industrial application. Pulsing air metal debris, glass particles, etc. Interchanging long hose makes it adaptable for removal of liquids from any normal surface or tank.

Special fittings and brackets make the new Bennett cleaner adaptable to any industrial application. Interchanging long hose makes it adaptable for removal of liquids from any normal surface or tank.

NO MOVING PARTS!  
Unlimited life . . . no danger from sparking.

COMPACT — POWERFUL!  
Highly efficient WET or DRY pick-up.

LIGHT — PORTABLE!  
Body of aluminum casting.

EASY TO OPERATE!  
Designed to reduce operator fatigue. Hand-operated metering valve.

COMPLETE UNIT WITH 8' ALUMINUM HOSE,  
AND BAG

**\$29.50**

NO ELECTRICAL CONNECTIONS NECESSARY!

**M-M-A, Inc., Lancaster, Pa.**

## appointments

(Continued)

Air Conditioning Div. since 1939. Herbert J. Wynn has been appointed field representative for the company's Weathertron Dept. He will handle sales of heat pumps in western Pennsylvania, West Virginia, Kentucky, Ohio and Indiana.

► JOSEPH D. LOVELEY as vice president in charge of engineering of the Airtemp Div., Chrysler Corp. He has been with the company since 1935, has served as assistant chief engineer and, since 1950, as chief engineer.



Joseph D. Loveley



Alton W. Beck

► ALTON W. BECK as assistant vice president of the Robertshaw-Fulton Controls Co. and sales manager of

*Precisely!*

## GALVAN ELBOWS

- Precisely mechanically produced!
- Precisely hot dip galvanized!
- Precisely packed for shipment!
- And, every single elbow GUARANTEED to fit precisely!

Sold Only Through Legitimate Jobbers

Write for our inspiring monthly publication "Galvan Rite-Angle"

• It's FREE on request

**GALVAN**  
Manufacturing Co.  
New Albany Indiana

## appointments

(Continued)

the Heating Controls Div. Mr. Beck was formerly sales manager of the Grayson Controls Div.

► JAMES T. KARABASZ, for the past several years regional sales representative of Joseph T. Ryerson & Son, Inc., as general manager of the Luria Steel Supply Co., Inc. Paul Albert, office manager, will continue in that capacity.



James T. Karabasz



Clifford R. Boeckler

► CLIFFORD R. BOECKLER as district manager of the western New York territory of Niagara Machine & Tool Works. His territory includes Niagara and Erie counties in New York and Erie county in Pennsylvania.

## Now! A Reliable FILTER GAUGE that SELLS ON SIGHT!

FOR  
FORCED  
AIR  
HEATING,  
VENTILATING,  
AND  
COOLING  
UNITS



- INCREASES PROFITS
- EASY TO INSTALL
- SELF-CONTAINED
- SELLS MORE FILTERS
- CUTS EMERGENCY CALLS
- USES NO ELECTRICITY

Ask your jobber or write for leaflet #11



BACHARACH INDUSTRIAL INSTRUMENT CO.

FG-2a

7301 PENN AVENUE • PITTSBURGH 8, PA.

\$5.95  
LIST  
LESS  
LIBERAL  
DEALER'S  
DISCOUNT

SHEET METAL and  
PLATE WORK

Bending,  
Forming,  
Notching,  
Blanking,  
etc

CHICAGO Steel

## PRESS BRAKES

Series A Light Duty Model  
CHICAGO Press Brake

In the almost limitless variety of operations on sheet metal and steel plate, CHICAGO Press Brakes are well known for their consistent production performance. The proved all-steel construction and the flexibility of design in all models offer a versatility that is hard to beat. With 42 standard sizes, there is a CHICAGO steel press brake to suit your requirements.

Full Particulars and Recommendations  
for Any Job on Request

4034

DREIS & KRUMP  
MANUFACTURING COMPANY

CHICAGO  
STEEL BENDING, SHEARING,  
ROLLING, STAMPING,  
PRESS BRAKES

7404 S. Loomis Blvd., Chicago 36, Ill.

IT'S

# NEW! NEW! NEW!

## ALLEN'S Automatic Booster Fan



only \$19.95 retail  
• Circulates Heat  
• Warms Hard to Heat Rooms and Basements  
• Quiet . . . Efficient  
• Easily and Quickly Installed  
• Saves Heating Dollars

## THE ONLY COMPLETELY AUTOMATIC BOOSTER FAN

Built for use in gravity type hot air heating ducts, Allen's Booster Fan can be easily installed in 8, 9 or 10-inch pipe in a few minutes. When mounted, simply plug it into the house current . . . set the control for the most efficient duct temperature . . . and it works automatically, Spring, Fall and Winter. Rubber cushioned throughout, it may be mounted in bedroom pipes without disturbing sleep.

Write for new catalog sheet, price and dealer discounts.

### PARK SHEET METAL SPECIALTIES

6212 Goodrich Avenue Minneapolis 16, Minnesota

## THE RIGHT SHEARS FOR ANY CUTTING JOB

### MARSHALLTOWN



#### ROTARY THROATLESS SHEARS

CUTS ALL SHAPES—SIZES  
● QUICKER  
● EASIER  
● FASTER

Here's a shears that's right for every job. Speedy — efficient. Cuts up to  $\frac{1}{4}$  inch stock — speed to 6 ft. per minute. Excellent for irregular cutting or straight splitting. Available in hand operated or motorized models. Prompt shipment. Send today for special illustrated bulletin.

**MARSHALLTOWN MFG. CO.**  
Marshalltown, Iowa

## appointments

(Continued)

► DAVID F. BELKNAP as district manager for the new Wichita, Kans., branch of Penn Controls, Inc. This branch will cover the state of Kansas and parts of Missouri, Arkansas, Oklahoma and Texas.



David F. Belknap



Edward R. Maddock

► EDWARD R. MADDOCK as works manager of Worthington Corp.'s Decatur, Ala., works. Mr. Maddock has been with the firm since 1936. He succeeds George P. Passmore.

► MAURICE FIRESTONE as regional sales director in the metropolitan New York area for Typhoon Air Conditioning Co., Inc. Melvin Klingher will serve as district sales manager covering northern New Jersey

## WHITNEY-JENSEN METAL WORKING TOOLS

FOR 43 YEARS

BENDER NOTCHER



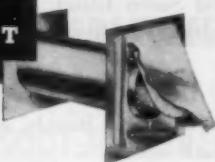
### NO. 455 ANGLE IRON COMBINATION

An unusually strong and compact unit for shearing, notching, and bending angle iron. Adaptable for on-the-job work or permanent mounting in the shop. Floor space required — 21-1/2" x 26". Capacity — all sizes angle iron up to and including 2" x 2" x 1/4". Write for our new Complete Catalog.

WHITNEY METAL TOOL COMPANY • 81 FORBES ST., ROCKFORD, ILL.

*The Original*  
**LAUND-R-VENT**

For automatic clothes dryers. Friction free. Rust and ice proof. Built entirely of aluminum. 3" and 4" sizes. Prices start at \$1.95. Complete kits available.



## Best Performance New Low Prices

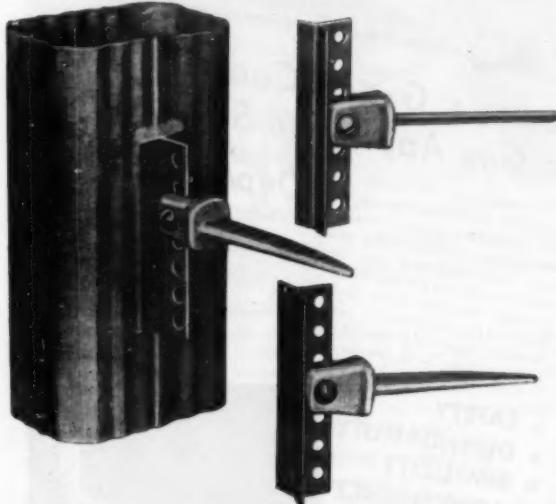


*Standard Round*  
**SULLIVAN STABILIZER**

Gate control with or without universal sleeves. Open check type. Perfectly counterbalanced. Ball bearing equipped. Stock sizes from 14" to 36". Prices start at \$10.83. For top or side mounting. Special sizes on order.

**COLE-SEWELL ENGINEERING CO.**  
2288 UNIVERSITY AVE., ST. PAUL 14, MINN.

**Contractors Prefer F & F  
CONDUCTOR FASTENERS  
for a Neat, Substantial Job!**



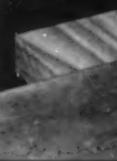
These high grade, inexpensive fasteners take less time to put in, make a more secure and permanent installation. Pipe stands  $\frac{1}{2}$ " away from wall. Cadmium plated malleable iron drive bolts to galvanized or copper perforated clip. Write for details and prices.

**FRANCK and FRIC**  
7109 KINSMAN ROAD • CLEVELAND 4, OHIO



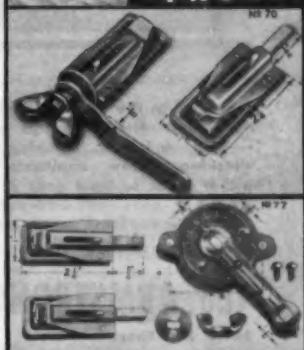
## **KWIK-WAY DAMPER REGULATOR SETS**

ONE SOLID  
HAMMER BLOW  
SETS THE BEARING



PERMANENTLY  
SECURE,  
RATTLE-  
PROOF!

No anvil required. Both bearings have retractable bolts for easier installation. Their convenience and time saving characteristics makes them by far the most economical sets when installed costs are considered. See your jobber or write for literature.



**HART & COOLEY MANUFACTURING CO.**

500 EIGHTH STREET HOLLAND, MICH.  
IN CANADA: HART & COOLEY MFG. CO. FORT ERIE, N., ONTARIO

**WEBCO** *the portable*  
**SHEET METAL BENDING BRAKE**



The WEBCO brake bends 20 gauge mild steel — an exceptionally strong — precision unit — compare specifications and construction. Make your own ducts and fittings — Portable.

Write for detailed information.

**HALLMOR INC.**

McMURRAY ROAD  
BRIDGEVILLE, PA.



Standard in the field for nearly 40 years. THARCO stays put! — No shrinking, cracking or checking. Now available in either black or light gray in 1-pound cans to 350-pound drums. Order from your jobber.

## The ARMSTRONG COMPANY

241 S. Post Street

Detroit 17, Michigan

## FLANGES THE DUCT with Amazing Speed!

Less than 5 seconds on short  
and lighter pieces . . .

Slightly longer on bulkier pieces

### MAKES PERFECT DRIVE-CLEATS TOO!

The ONLY tool that does both. A complete drive cleating tool . . . no set-up time . . . no adjustments. Handy to take out to the job when not needed in the shop. Turns idle time into production time. Flanges any square duct up to 20 gauge. Quickly pays for itself in time, material and labor savings.

No. 12 Smith's Cleat Bender

(12" wide) . . . \$46.20\*

No. 18 Smith's Cleat Bender

(18" wide) . . . \$72.60\*

\*F.O.B. Waukegan, Illinois  
Prices subject to change  
without notice

**R. E. SMITH**

1124 Elizabeth Avenue • Waukegan, Illinois



## appointments

(Continued)

and Staten Island. Seymour Jarcho will handle Manhattan, the Bronx and Westchester County.

► DEHAAS & MITCHELL, 2775 Lake Michigan Dr., N. W., Grand Rapids, as sales representatives covering southwestern Michigan for DeBothezat Fans Div., American Machine and Metals, Inc.

► TED NEMES as vice president and general sales manager of the Whitehall Engineering Co., national distributor of mobile room air conditioners manufactured by Union Asbestos & Rubber Co. and Chicago distributor of other Unarco air conditioning products.

► RALPH M. KEENAN as sales representative for Follansbee Metals, a division of Follansbee Steel Corp. He is working out of the Pittsburgh plant, handling the sale of hot and cold rolled steel products, aluminum, and stainless steel to sheet metal and industrial firms in towns north and east of Pittsburgh.

► WYNAN H. OSBORN as sales representative for Ashburn Supply Co. covering the southeastern California territory formerly handled by C. C. Whitington. This

**The MODERN Lighter Tube**  
*With the Slanting Blue Flame*

**Today's Great Contribution  
to Gas Appliance Safety and  
Dependability!**

To safeguard all users of gas-fired heating equipment and appliances against hazard, our lighting methods, more and more manufacturers are engineering the MODERN Lighter Tube into their units. Utilities and wholesalers too, strongly favor the MODERN Lighter Tube as a component part of all gas-fired units. Dealers recognize it as a vital sales feature. Available in aluminum or stainless steel 3/8" O.D. tubing. The MODERN Lighter Tube offers the utmost in . . .

**★ SAFETY**  
**★ DEPENDABILITY**  
**★ SIMPLICITY**  
**★ CONVENIENCE**

**PERFECTED OUTSIDE LIGHTING**

**MODERN MATERIALS CO.**  
**NORTHVILLE** **MICHIGAN**

it's easy to  
**LOWER STACK TEMPERATURES**  
 when you remove soot with  
**"CLEAN RIGHT" SOOT REMOVER**

Eliminate soot from heating stacks to increase efficiency and lower fuel costs immediately.

Now you can remove large coatings of soot from heating plant and flue pipes. It takes only a few minutes. Simply dust CLEAN RIGHT into the heater to clean the entire system. CLEAN RIGHT is safe since it does not create intense heat. CLEAN RIGHT was developed by Heating Engineers and is recommended by Manufacturers. You need no special equipment to remove soot completely. CLEAN RIGHT does the job without dirt or mess.

CLEAN RIGHT is available in 3 sizes for home use and large drums for commercial plants. There is a package size to fit any requirement. CLEAN RIGHT is economical — 8 to 10 cleanings per 8 oz. can. Only a small amount of CLEAN RIGHT is necessary for an application and the remainder can be safely stored until needed again.

**NON-CORROSIVE — NON-EXPLOSIVE**  
 "Look for the Broom on the Package" "Clean Right" was formerly called "Clean Sweep" Still the Same Superior Formula  
 Contact your distributor or write . . .

**MILLER PRODUCT CO.**  
 3046 CEDAR ROAD  
 LANSING, MICHIGAN



**TIME SAVING**  
**E-Z-ON**  
 DAMPER REGULATORS  
 PERMIT  
 INSTANT ASSEMBLY

(Shown—head piece of #27 E-Z-ON)

It's the little things that  
 make the Big difference!

Advanced design of E-Z-ON damper regulators permits on-the-job Assembly with only a hammer — no drilling — no rivets. This 16 gauge steel regulator is simply positioned on the damper by sliding it over the scribed center line. The E-Z-ON accurately stays in position until a hammer blow drives the sharp prongs through the damper (E-Z-ON prongs will pierce 22 gauge metal.)

**E-Z-ONS PROVED MORE PROFITABLE**

Job Histories prove that your apprentice or journeyman can save two-thirds of their damper makeup time with E-Z-ONS.

**M. A. GERETT Corp.**

724 W. Winnebago, Milwaukee, Wis.

Stocked in CANADA by  
**THERMIDAIRE CORP.**  
 7-9 Cumberland Street, Toronto

**STYLE & SIZE**  
 Famous E-Z-ON standard  
 design No. 27  
 Solid end tail piece, threaded  
 head piece and wing nut —  
 $\frac{1}{2}$ " bearing.

**Superior E-Z-ON**  
 "Snap-Tite" Design No. 29  
 Tail piece with retractable  
 snap end bearing, threaded  
 head piece and wing nut —  
 $\frac{1}{2}$ " bearing.

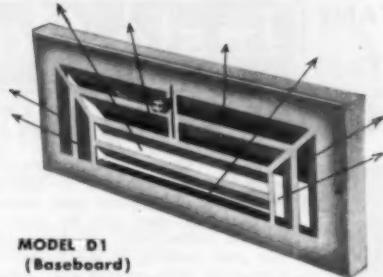
**ASPIRIN WON'T CURE  
 HEATING HEADACHES-  
 quickdraft WILL!**

Plans and plant may be perfect, but they won't work without a good draft. Low chimneys and long smoke pipe runs complicate the problem. Tall trees, hills and neighboring buildings cause down drafts. QUICKDRAFT, the unique mechanical draft induction unit, engineered to overcome draft problems, creates a draft instantly for any type of heating equipment.

QUICKDRAFT positively stops chattering and pulsation (oil), condensation (gas), puffing and sooting (coal). It doesn't obstruct the smoke pipe, can be vented through walls or into short stacks.

Get all the facts. You'll want to use Quickdraft on your next job — and on all of them from now on. Ask your jobber — or

write us for name of Quickdraft jobber nearest you.  
**QUICKDRAFT COMPANY, 1150**  
 So. Erie Blvd., HAMILTON, OHIO.



**MODEL D**  
 (Baseboard)

**NEW DIFFUSER TYPE REGISTER FOR  
 HIGH VELOCITY HEATING AND  
 COOLING**

- No Whistles • No Cold Spots
- Directs Heat Where You Want It

This new Model D Diffuser type register directs a broad expanding air stream, which follows the walls and ceiling, passes back of draperies and does not hit the furniture. High velocity and high efficiency insure even distribution of air without cold spots. Designed to replace standard forced air registers at equal prices. Complete list of sizes. This register is an addition to the National line of registers and grilles which includes all types and sizes to meet any heating or air conditioning requirement.

**WRITE FOR CATALOG**

*National* **GRILLE AND  
 REGISTER CO.**  
 3169 East 80th Street Cleveland 4, Ohio



**Ask Your Jobber  
for  
DIECKMANN**

**ELBOWS  
and  
SHOES**

**"An angle for every  
obstacle"**

Made in 28, 26 and 24  
gauge steel, hot dipped gal-  
vanized after formation. Also  
in Copper, Aluminum and  
Stainless Steel.

**Sizes 1" to 6" — Angles  
10 to 90 degrees.  
Always uniform in size  
and angle**

**• • •**  
One piece tapered with no  
protruding seams—a perfect  
and tight fit with any con-  
ductor pipe without solder-  
ing.

**THE FERDINAND  
DIECKMAN CO.**

P.O. STATION B,  
CINCINNATI 22, OHIO



Plain Round



Round Corrugated



Square Corrugated  
Style "A"



Square Corrugated  
Style "B"

**appointments**

(Continued)

includes northeastern Pomona, Riverside, San Ber-  
nardino, Palm Springs and the desert areas.

**Obituaries**

**Allen G. Butler**

ALLEN G. BUTLER, vice president and general manager of the Controls Div., Perfex Corp., died September 6, 1954, at Columbia Hospital, Milwaukee, after a short illness. He had been with the company's Milwaukee office for the past 10 years and before that was in charge of the Chicago office. Surviving are his wife, a son, his mother and a sister.

**Walcott G. Van Etten**

WALCOTT G. VAN ETEN, vice president, Conco Engineering Div., H. D. Conkey & Co., died August 27 after a long illness. He joined the company in 1911, and in the later years served as general manager of the heating division. He was a key figure in the expansion and management of the company. He is survived by his wife, one son and two daughters.

**INSTANT  
LIGHTING**

**Insto-Gas**

T M REG U.S. PAT. OFF

**SOLDERING IRON HEATER**



Sheet metal contractors can now have hot soldering irons in 2 minutes and with Insto-Gas they can be kept at the desired temperature all day long without even looking at the heater. Insto-Gas saves 40% on fuel cost and enough time to pay for the entire equipment in one week's operation.

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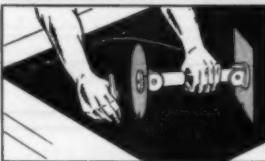
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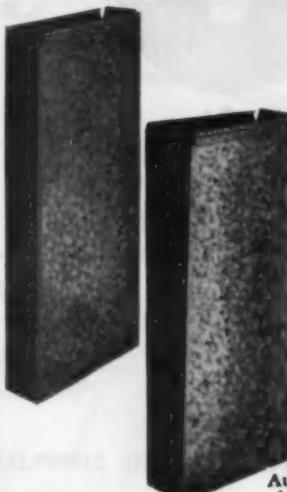


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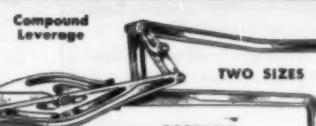
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are you looking around for items or personnel? A simple classified advertisement here will help quickly, at low cost.

### miscellaneous . . .

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Rates for display space in the Service Section are \$12.00 per inch per insertion. One-inch minimum space accepted. Closing date — twentieth of the month preceding issue.

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To avoid missing any issue of *American Artisan* it is important to report both your new and old address to us and your post office. Deadline is the 18th of the preceding month for the next issue. Send changes — and new local postal delivery zone — to **AMERICAN ARTISAN, 6 N. Michigan Ave., CHICAGO 2, ILL.**

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If you would like your name listed on our records of inquiries we may receive on your territory, we invite you to write us. There is no charge in connection with this service.

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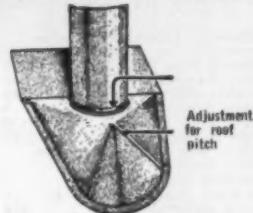


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